	Th/Exp	Topic	Topic-2	Question
1	E	Accelerator	All subdet	I would like to better understand the details of design of hadron colliders. What are the general approaches when designing a hadron accelerator, and detectors for them?
2	E	Accelerator	DA	Most of my experience at CERN has been centered around the detector which focuses on what the detector sees at the end of the events. My question is how can the luminosity be calculated?
3	E	Accelerator	DA	What are some of the differences between the LHC and Fermilab colliders, and how will these differences affect their analyses? Other than luminocity and energy, what are the physics advantages of research at Cern? Even though the LHC run has not yet begun, are there lessons already learned that would affect designing the next large hadron collider or a linear lepton collider?
4	E	Accelerator	General	Years ago I read reports suggesting the increased complexity and the presence of multiple experiments at the LHC would lead to reliability and downtime issues. Have any procedures or systems been developed to minimize downtime for the LHC? Are there any projections of data taking efficiency for the various experiments?
5	E	Accelerator		How does the LHC work ?
6	E	Accelerator		What are the details about the idea of Pantaleo Raimondi to gain even 2 order of magnitude in luminosity just having a different bunch crossing geometry?
7	E	Accelerator		How many fb^-1 of data is expected from the LHC each year?
8	E	Accelerator		At LHC I know the Beam Halo will become a big issue. As I already had to deal with this and most exotic searches suffer from this, I want to know what sort of attempts are made at LHC to reduce and understand the halos? How significant it'll be?
9	E	Accelerator		How is the beam collimated in the LHC machine?
10	E	Accelerator		How is used sinchrotron radiation in hadron colliders ?
11	E	Accelerator		What improvements can be made to hadron collider accelerators and which are likely to be implemented in LHC upgrades?
12	E	Accelerator		What are the timetables of the LHC in terms of a ramp up in beam luminosity and bunch luminosity? Is there a fixed data collection period without multiple interactions per bunch crossing expected, and what physics results are needed during this time?
13	E	Accelerator		How do we make a vacuum in hadron collider or in accelerator? How much vacuum condition is it enoguh to take data in hadron collider? If there is not in vacuum, protons might collide other particles instead of other protons, and then that would give us wrong data.
14	E	Accelerator		How is future of hadron colliders going?
15	E	Accelerator		Is there any influence of moon’s attraction and train schedule on LHC’s beam? Is it taken into account somehow?
16	E	Accelerator		What will be the crossing angle at the CMS P5?
17	E	Accelerator		when the LHC is expected to get his maximum luminosity?
18	E	Accelerator		How is plasma wakefield acceleration going to change the landscape?
19	E	Accelerator		What problems have been faced in the commissioning of the Tevatron accelerator and how has the planned commissioning of the LHC been effected to deal with similar occurances.
20	E	Accelerator		When the LHC is expected to get its maximum luminosity?
21	E	Accelerator		I'm intersted with some aspects about beam physics of hadron colliders.
22	E	Accelerator		I would like to know, how is explained the polarization of beam ?
23	E	Accelerator		What are some of the newest techniques for producing the high energy beams seen at the LHC?
24	E	Accelerator		Any explanation of the details of LHC technology and how it differs from previous hadron storage rings would be pretty interesting to me.
25	E	Accelerator		How much electric power do we need to make stable magnetic filelds in hadron collider or in accelerator? What kind of source do we use to make the electric power?
26	E	Accelerator		What is the future of Hadron Colliders, after the LHC era (Tevatron/LHC upgrade) ?
27	E	Accelerator		How do the experiences of running the Tevatron aid in the turn-on of the LHC and what problems are expected from the first collisions?
28	E	Accelerator		What kind of beam defects are going to prevail at the time of LHC running and how to come over them?
29	E	Accelerator		What is the future of particle physics (next 10-20 years)? Will (or can) further experiments be realized (regarding the budget problems in the States, for example)? Will there be any hadron collider experiments after the LHC?

30	E	Accelerator		How does the future of the LHC and its experiments looks like, how are they affected by radiation damage and what are the possible upgrade scenarios?
31	E	Accelerator		What will other accelerators be able to study once the LHC is turned on (will they become obsolete, or quite the opposite)?
32	E	Accelerator		What are the technical limitations of the Hadronic Colliders?
33	E	Accelerator		What kind of characteristics does the next generation hadron collider have to have in order to have a better understanding of particle physics and the theories beyond standard model?
34	E	Accelerator		How can we design even more powerful accelerators and what are our technical limitations?
35	E	Accelerator		If an earthquake occurs in LHC, how much tremor could the constructions in LHC stand?
36	E	Accelerator		What does the future hold for LHC and particle physics? Is the LHC the last big detector of this generation? What are some of the proposed upgrades to the LHC?
37	E	All subdet	Accelerator	What are going to be new challenges for the operation of hadron colliders as the energies reach the levels of the LHC?
38	E	All subdet	DA	What are the most simple standard model candles that can be used at LHC startup ? Where I am defining simple as those with minimum requirement related to the number of sub-detector and calibration needs. I think that these type of measurements will be crucial for understanding LHC and CMS detector early on.
39	E	All subdet	DA	signal calibration procedures; how experimentalists recover SM before claiming discoveries, and related pitfalls and problems.
40	E	All subdet	DA	For B physics at the LHC: How will flavour be tagged and B mesons identified in LHCb and other experiments at LHC energies?
41	E	All subdet	DA	I am most interested in what can be done with the first few hundred inverse picobarns of data. What sort of calibration studies and verifications of Standard Model measurements should be done first, before one says he/she is ready to begin to look for something beyond the Standard Model. What sort of computing issues will have to be resolved in order to access the first data? What is the current recommended Analysis Model?
42	E	All subdet	DA	What are the most important lessons, experiences made at Tevatron when it comes to high energy hadron physics?
43	E	All subdet	DA	Which are the main tecniques that will be used at LHC to estimate the background and the efficiencies directly from data?
44	E	All subdet	DA	What are some types of differences one would expect to see between data simulated using Monte Carlo methods and actual data from the accelerator and what are some ways one can account for this when performing and tuning simulations?
45	E	All subdet	DA	I think choice of cut is one of most important and difficult thing in the analysis of collider signals. Could you give me any guidelines or rules of thumb for imposing a cut to select a specific process, if they exist?
46	E	All subdet	DA	What are the techniques that allow you to distinguish different events in a collider?
47	E	All subdet	DA	Are there any computational elements(same software, tools, etc) used at LHC that have also been used in FERMILAB's experiments?
48	E	All subdet	DA	What are the subtleties involved in going from detector measurements to hadron level observations and how do you accurately compare these results to monte carlo output? In general, to what level can various monte carlo output (i.e. distributions, cross sections, etc) be trusted? What are the fundamental differences between the generators?
49	E	All subdet	DA, Computing	How accessible is the analysis model, which is built into the computing model, accessible and changeable individual analysis? I'm specifically referring to isolation cones, and electron/photon differentiation for photons that decay in the tracker.
50	E	All subdet	Early Physics	which was the main experimental issues of the CDF and D0 experiments at Tevatron start-up?
51	E	All subdet	Early Physics	I have not seen a comprehensive comparison of the Atlas and CMS detectors, especially in terms of the physics capabilities. I would like to know the following about these two awesome detectors: what are their strengths and weaknesses, both in the technical sense and from the physics perspective? Is one more sensitive to certain physics than the other? If so, how and why?
52	E	All subdet	Early Physics	How long will it take to understand the new detectors at LHC to the level of Tevatron experiments? and to get 10fb^-1 of understood data @CMS/ATLAS?
53	E	All subdet	Early Physics	Which statistics are necessary to understand well the detector and are there physics analyses possible with the data from the first year of LHC operation?
54	E	All subdet	Early Physics	In general, what are the most important first steps for an analysis with early data?

55	E	All subdet	Early Physics	How will Monte Carlo simulation of data signals be affected by improved measurements in the first years of running. For instance, will better understanding of the parton distribution functions and the underlying event lead to a re-tooling of the Monte Carlos as soon as they are ready? How large will this impact searches for new physics?
56	E	All subdet	General	Are there already ideas about new experiments for the future? I often hear about SLHC, but never about SCMS or something like that... are there already researches for better detector performances, to support higher and higher energy?
57	E	All subdet	General	Could you compare the discovery potential of ATLAS with that of CMS in detail?
58	E	All subdet	Trigger	After the Tevatron started run II, as far as I understand, it took much longer than expected to calibrate, align and increase the Luminosity. What range of problems and delays could be expected?
59	E	All subdet	Trigger	How do we build the link between the Monte Carlo analysis that has been carried out for long time in LHC experiments and the incoming new data? Understanding triggers, calibration, performance of the detector, simulation vs. data, known processes vs. searches for new phenomena.
60	E	All subdet		How long after the LHC turns on before experimentalists will be able to understand the detectors well enough to notice missing energy signatures?
61	E	All subdet		Within the first few months of the LHC turning on a lot of effort will go into calibrating the various detectors and understanding their response. Are there any methods that have been used previously in experiments such as CDF, D0 and H1 that will be greater use than others in understanding the detectors in the short term?
62	E	All subdet		Which issues or problems with the understanding of LHC detectors and their performance are most likely to hamper the effort to observe beyond-SM physics and the Higgs boson (and thus have the highest need for focused involvement on the part of young people)?
63	E	All subdet		The diffractive processes are extensively studied but one of it difficulties is to detect the forward particles, mainly when the background is huge as in the Higgs production case. What's the experimental effort done to solve it, or, is the Roman pots efficient enough to do this job?
64	E	All subdet		What improvements on existing detector technology have been made for the LHC?
65	E	All subdet		With such high collision rate and higher luminosity, there may be a significant overlap of energies between events. How do we correct this effect?
66	E	All subdet		Do we understand our MC generators well enough to measure quantities like masses with a precision of up to a few GeV?
67	E	All subdet		How do we identify electrons, muons, or other particles?
68	E	All subdet		Given the fact that till now was not forseen the pileup events for the first monts of running of LHC, what will be the strategy for measuring underlying events with the new program, meaning from the begining 5 pileup events per bunch crossing?
69	E	All subdet		My PhD is based upon studies to discover SUSY that can be performed with the early data. What can you tell me about the performance of the detector, and what methods may be used to calibrate it.
70	E	All subdet		What calibration measurements must be done after the LHC turns on before the data can be used to extract new physics results? How long are these measurements likely to take, and what are the likely delays?
71	E	All subdet		What are some of the technological differences the LHC has from the Tevatron in terms of event analysis? What improvements have been made in charged-particle and muon tracking?
72	E	All subdet		I would like to learn more about b-tagging technique.
73	E	All subdet		What can we expect from the next generation of collider physics detectors? What are the tecniques and technologies that could be exploited to build a better tracker or a new generation calorimeter?
74	E	All subdet		How long did it take, after the initial machine turn on, for various past experiments to understand the detector well enough to perform trustworhty analyses. What were the difficulties and what can we do to not make the same mistakes or prepare to tackle new ones which may arise.
75	E	All subdet		To the date the differential cross-sections of hadron production in the collisions of protons of few GeV with nuclei is know within a factor of two or even three. This is relevant for Monte Carlo simulation of hadronic calorimeters at the collider detectors. How does it affect the correct data interpretation? How large is the systematics due to that?
76	E	All subdet		CMS, Atlas, CDF, and D0 are all very different experiments. What are/was the motivations behind the unique detector elements, and how were the successes and pitfalls for CDF/D0 used to shape the CMS and Atlas detectors?
77	E	All subdet		Considering that the LHC will be a top factory, I am very interested in the differences between jet algorithms used at the different detectors. In particular, I am very interested in knowing the prospects and challenges of t-tagging jets at the different detectors.

78	E	All subdet		What are the machine influences on the detector, their effect on the reconstruction quality and possible approaches to correct for these effects.
79	E	All subdet		The LHC will be operating at much higher energies than its predecessors. What are the technological challenges to generating/detecting particles at such high energies?
80	E	All subdet		The differences in the various detectors around the Ring, and an explanation of the common acronyms constantly thrown around.
81	E	All subdet		After commissioning each part (tracking, calorimeters, muons) of the ATLAS detector separately, what would be the steps to calibrate/commission missing (transverse) energy?
82	E	All subdet		What is the best way to get rid of particles from Pile-Ups? How well does your method work with High Luminosity?
83	E	All subdet		What exactly is the raw data that is measured at the LHC (does the LHC measure anything else besides energy and momentum) and how is that raw data used to calculate observable quantities like mass, decay width, etc.?
84	E	All subdet		A lot of the phenomenology of theories BSM involve particles which posses high Pt's (Pts>1 TeV). What new experimental techniques can be applied to detect these particles?
85	E	All subdet		How do you calibrate any piece of the detector (ex. The ECAL) and how do you perfect the geometry?
86	E	All subdet		how we compare or correlate result from different detection system.
87	E	All subdet		When I was working with the CMS group a year ago, we used physics and detector simulators to understand the behavior of the CMS. I'd like to understand what really goes into writing the physics simulator. What assumptions and approximations are used in writing the code?
88	E	All subdet		Since ATLAS will be the first hadron collider experiment from which I will be seeing real data, I am interested in experiences with early data from the Tevatron. What processes were studied, and how did they help the understanding of the detector? I would be interested in an overview of which SM process can be used for which purpose after the first few months of data. How was the tau identification (b-tagging, etc.) studied with first data?
89	E	All subdet		Knowing that jets which fake electrons, muons, photons, and taus are all due to the underlying process in which a parton fragments into a leading pion, what can we do to improve lepton identification criteria in order to reduce this fake rate?
90	E	All subdet		What are the advantages and disadvantages of the CDF and DZero experiments relative to each other?
91	E	BSM		Microscopic black holes would be observable at the TeV energy range reachable by the LHC according to some exotic models (models with extra space dimensions, for example). How ATLAS and CMS are intending to observe such black holes?
92	E	BSM, SM		My second question is a rather common question from people who I talk to about my studies : what if we see no Higgs at LHC ? What would this imply, after tens of years of Particle Physics research affort dedicated to this "quest" ?
93	E	Calorimetry	Accelerator	This Question is for Mike Lamont. How can we use the initial stages of LHC to understand Low energy jets and consequently correlation functions in PDF ?
94	E	Calorimetry	All subdet	How are jets calibrated (both electromagnetic and hadronic) and in general what kind of an impact do different effects have on our ability to reconstruct physics objects (such as effects of "soft physics" backgrounds and fakes for leptons, photons, missing transverse energy)?
95	E	Calorimetry	All subdet	Topic: Experimental Techniques – The LHC will have many more interactions per bunch crossing than the Tevatron. In what way will the large number of interactions influence the reconstruction of jets at the LHC? What is the most effective way to reduce event pile-up during online event reconstruction?
96	E	Calorimetry	All subdet	How much we will be relying on MC to determine whether a jet is a bjet?
97	E	Calorimetry	DA	Is it always possible to univocally associate missing energy to a specific particle, extra-d or whatever?
98	E	Calorimetry		What is a jet and which are the algorithms to find it?
99	E	Calorimetry		Starting from first principles of hadron interactions with calorimeter material, how does a hadronic shower develop in the calorimeter and in which manner(s) is the energy of the shower finally deposited in the calorimeter?
100	E	Calorimetry		What are the particle flow algorithms?
101	E	Calorimetry		HOW DOES THE ADDITION OF TRIVALENT DOPANTS EFFECTS THE SCINTILLATION PROPERTIES OF PbWO4 CRYSTALS
102	E	Calorimetry		The understanding of minimum bias and underlying event are extremely important for predicting background levels associated to many physics processes in hadron-hadron collisions. However, this is a non-trivial task giving the complexity of QCD. What are the main problems observed at Tevatron (discrepancies between MC and data) and how is the tuning being done in order to predict the jets transverse energy and jets multiplicity at LHC?

103	E	Calorimetry		Any and all things regarding calorimetry. I know that's not a specific question: all of my research experience is with components of the ATLAS Inner Detector, so I don't really even know enough to ask a detailed question. Well any discussion about how one distinguishes electrons from jets with calorimetry would be very useful.
104	E	Calorimetry		How accurately can jets be reconstructed?
105	E	Calorimetry		What are the methods to determine the absolute energy scale in the detectors?
106	E	Calorimetry		HOW DOES THE CODUCTIVITY CAN BE INCREASED IN PbWO4 CRYSTALS
107	E	Calorimetry		How can we detect a believable missing energy?
108	E	Calorimetry		How will the various jet algorithms play a role in data analysis? Is there a "preferred" algorithm by each experiment, or will there be an effort to analyze data in terms of multiple types of jet algorithms (with different parameters)?
109	E	Calorimetry		In one or two years later, when LHC reaches high luminosity, there would be serious pile-up effect. How much difficult would this posed to the missing Et measurement? And how should we deal with it? Is there something we can learn from previous experiment?
110	E	Calorimetry		What can we learn from jets?
111	E	Calorimetry		What jet algorithms do exist? How to associate "nearby" hadrons or partons into jets (how can we handle (short-distance) parton showers that e.g. spread out?)? Should experiments like Atlas and CMS use the same algorithms? What can we learn from the experience of the experiments e.g. D0 and CDF? I have read that pt_miss calculation is largely affected by the pile-up addition, so the ptmiss resolution in physics events is deteriorated by a large factor. How can we studied this? How do we model underlying events?
112	E	Calorimetry		A large source of experimental systematic uncertainty on jet inclusive cross section measurements is the jet energy scale uncertainty. What are the experiences from the Tevatron and what can we learn from there to reduce this uncertainty?
113	E	Calorimetry		Relevance and scope of modern calorimeteric systems in next 20 years?
114	E	Calorimetry		Jets can be defined using a cone algorithm, or a kT clustering algorithm. Are there any other options, and what are the benefits and problems of using the different jet definitions?
115	E	Calorimetry		Given the busy environment at the LHC, how well can the calorimeter systems be used to reconstruct jet of particles?
116	E	Calorimetry		HOW DOES THE SCINTILLATION MECHANISM TAKES PLACE IN PbWO4 CRYSTALS WHEN DOPED CERIUM ION
117	E	Calorimetry		Reconstruction/LHC Fermilab: When measureing jets, is the charge/flavour of the initial particle able to be determined? Will this be easier/more-difficult at LHC experiments when compared to Fermilab experiments?
118	E	Calorimetry		This is in general. How can I better incorporate Tracking and Trigger information to understanding Jets better ?
119	E	Computing	DA	What sort of work is being done in preparation for the LHC in terms of computing and software infrastructure? In the Top Group at CDF we have developed a set of significant common tools (eg. Method II for background estimation, common topntupled background samples) is work being done to develop similar tools for the LHC? At what level are common data formats being or planning on being used at the LHC?
120	E	Computing	Statistics	One of the most impressive facts about analysis in the LHC era will be the size of the data samples. In what direction are evolving the tools of statistics? do we need tools which are significantly different from the ones which have been used in the past?
121	E	Computing		Do you think it would be possible to do analysis for CMS remotely with GRID system? I mean stying in each own country will make people hard to work with the big data sample collected from LHC? If it is difficult how difficult will it be?
122	E	Computing		How long is data from previous experiments kept in storage? Is it possible to run analyses on this data if it does exists? And how long is LHC data planned to be kept accessible?
123	E	Computing		When skimming data for a certain particle, is the entire event kept?
124	E	Computing		In face of the massive amount of data produced in modern hadron colliders: How can physics studies be streamlined to use computing Facilities economically?
125	E	Computing		Finally my experience in grid computing has lead me to ask: Will the computing resources be ready for these Terabytes of information from Atlas, CMS, and LHCb?
126	E	Computing		What are the challenges in producing MC data at LHC?
127	E	Computing		With large amount of data coming out of collider, how are you going to analyze the data?
128	E	Computing		I have developed a computing model for my thesis. For the next stage in my career i would like to know more about the computing model for the LHC. How do we deal with large datasets.
129	E	Cosmology	General	Is there any chance to detect dark matter at LHC directly? Will there be any group working on topic of Dark Matter and missing energy?

130	E	DA	All subdet	How the huge amount of experience gained at Fermilab could help physicists to better understand what's going on at LHC ? And which kind of sinergies between LHC and Tevatron are foreseen in next years ?
131	E	DA	All subdet	Which methods allow one to validate results of Monte-Carlo simulations with regards to model dependances for both signal and background? How to estimate the systematic errors associated with these models for Monte-Carlo event generators?
132	E	DA	All subdet	I want to talk to some old-hat CDF people about software analysis of b-quark, t-quark and jet analysis. It seems to me that there are two major ways this can be done: by identifying jets first and then discerning their type, or by finding secondary vertices first and associating them with their daughter tracks. I've read of both types of analysis, and the CMSSW software seems heavily slanted toward the latter choice. But why is this? And what are the benefits to either kind of analysis?
133	E	DA	All subdet	What are the physical implementations or ingredients, respectively in the Monte Carlo Software?
134	E	DA	BSM	Concerning the physics beyond the Standard Model: I would like to understand better the differences between the strategies followed and embodied by the physics behind detectors of the LHC experiments.
135	E	DA	Early Physics	How will luminosity be measured at the LHC experiments (CMS in particular)? How quickly can we use standard candles (e.g. Z->mumu, Z->ee) to help determine the luminosity?
136	E	DA	General	Are there any likely scenarios for physics beyond the Standard Model where one experiment (CMS or ATLAS) has a distinct advantage over the other?
137	E	DA	QCD, HF	Is there any event generator which takes into account particle polarzation in their decay kinematics? How can this be done using Pythia, if at all, since particles always decay isotropically in their rest frames?
138	E	DA	Statistics	What's the impact of the pile-up problem in the observation of events with small probability of occurring, e.g., the Higgs production?
139	E	DA	Statistics	A recent top mass measurement at the Tevatron uses the template method to infer the true top mass from comparisons between the reconstructed top mass and Monte Carlo data. How confident can we be in a measurement if it is based on Monte Carlo data, which does not take into account all orders of perturbation theory, and also has errors associated with the modelling of hadronisation and detector effects? What sort of challenges will this pose for such measurements at the LHC?
140	E	DA	Statistics	taking into in account the efficiency test of the detectors and Standard Model precision measurements, what is it the estimated time for the LHC machine in order to obtain real signals about any new physics?
141	E	DA	Statistics	What are the different data analysis techniques experimentalists use to deal with low signal to noise ratio data?
142	E	DA	Statistics	How do we account for the backgrounds in top events? I know a little about this area, but I would appreciate a sophisticated talk addressing the various components of the backgrounds. Also, what are the systematic uncertanties, and how are these calculated at Fermilab and Cern? Are there any differences in the analysis techniques used by these institutions?
143	E	DA	Statistics	In data analysis: how to evaluate background selections, how to handle systematics/statistical errors? What are the different techniques used for data analysis? Examples.
144	E	DA	Statistics	Many physicists believe that cuts based analysis are safest when dealing with a new detector, machine, and energy regime. What things need to happen before analysis techniques like neural networks are reliable?
145	E	DA	Trigger	How do you optimize signal to background, impose selection criteria and choose which trigger path would best suit your analysis?
146	E	DA	Trigger	Since a large restriction to analyses that can be done is due to lack of Monte Carlo statistics for a particular background, what can we do to improve Monte Carlo generators in order to increase statistics for particular backgrounds - eg. can we obtain a sample of QCD dijet events enriched by the particular types of events which we know will tend to fake electrons (or muons, or photons, or taus), in order to obtain a high statistics sample of fake lepton backgrounds.
147	E	DA		What novel detector principles will be used in detecting particles at the LHC?
148	E	DA		How to estimate the SM background for, for instance, my 1Lepton+jets+Etmiss SUSY analysis? How can I know which processes have I to take into account?
149	E	DA		How do physicists decide what measure to use in order to compare the size of two different regions of parameter space?
150	E	DA		What is the most powerful technique presently available for model independent searches for new physics at the LHC and the Tevatron and how does it compare in sensitivity to model dependent techniques? What are the prospects for such searches at the LHC?
151	E	DA		What are the experimental analysis proposals to the Beyond SM physics?

152	E	DA		Once the data from LHC is available, which analysis techniques can help us in distinguishing the signals which look almost same in the detector but have different theoretical backgrounds? How to make claims about the correct theory?
153	E	DA		Being the dominating background for SUSY searches with leptons, how can one effectively estimate the top background from data?
154	E	DA		Is there any systematic way to check that you didn't grossly mis-estimate your systematic uncertainties? Say after you fit your predictions to data.
155	E	DA		How to test beyond standard model while checking consistancy between LHC and previous experiments(e.g. Tevatron)?
156	E	DA		With more data collected at LHC will the method of how to do analysis be changed? There are lots of method of how to approach to data sample such as frequentist, bayesian and neural network.
157	E	DA		What exactly are minimium bias events and how do they differ from hard scatter events and zero bias data? How are they related to the number of primary vertices?
158	E	DA		In the light of its application to data from the Tevatron, how effectively can Neural Networks be used for analyzing the data from LHC, both at the software and hardware end?
159	E	DA		This is for Beate ,with reference to choice of analysis topic.When I was thinking about what I wanted to do for my thesis topic I cam across a theory paper about Multiple Parton Scatterng.I further realsied the one such analysis has been done in CDF ,Double Parton Scattering.My question to you is Should a gradute student be driven by bigger picture kind of topic or one that he/she will learn more of the tools of the trade ?
160	E	DA		I am new to D0. I would like to hear about different methods for searches vs measurements and how to select analysis topics for the tevatron physics. The topic will be covered in the lecture given by Beate Heinemann.
161	E	DA		Are there any generally useful techniques in cutting the data so as to restrict background?
162	E	DA		Following the turn on of the LHC this year, how can we perform completely model independant searches for BSM physics whilst at the same time correctly estimating SM backgrounds?
163	E	DA		What quantity are the Tevatron experiments measuring in their top quark mass measurements?
164	E	DA		To determine the W mass there is a standard procedure based on the W transverse mass. Is there a smilar procedure that I could use to find the eta distribution of the associated neutrino, of the W decay, based on the measurement of the missing transverse energy?
165	E	DA		Which different methods of top mass reconstruction have been used so far at Tevatron and can be used at LHC?
166	E	DA		Luminosity calculations will be very important for the many measurement at the LHC, i.e. cross-sections etc.. How accurate are the techniques being employed at the LHC ? How will our knowledge of the luminosity affect the discovery potential of the LHC?
167	E	DA		To what extend can we rely on Monte Carlo's to estimate contributions from backgrounds?
168	E	DA		What are the challenges and issues that need to be addressed when moving from a monte carlo study to an anaylsis using real data.
169	E	DA		How to minimise the QCD background by giving various cuts on the kinematic variables to get better signal to background ratio?
170	E	DA		I would like to gain some knowledge on how to do a precision measurement analysis, starting from the event selection, then how to know/test if I need to consider a given background or not, what may be the best technique to analyze the data, understand until which point one can use Monte Carlo simulations to do validation tests or meassurements, and finally how to evaluate systematic uncertainties (and correlations maybe??).
171	E	DA		For years, the only "data" we have got from the LHC are MC data and all the analysis we built have been tested on them. So, how independent from MC will be the results we'll get ?
172	E	DA		How much a theoretical particle physicist must known about the detectors to do a good data analysis?
173	E	DA		Will different research groups at the LHC be bound to similar data analysis techniques? How will the encouraged or required techniques be based (cuts, decision trees, neural nets, etc.)? Are there new techniques for analysis being explored?
174	E	DA		How does underlying event and beam remnants effect the top mass measurements at hadron colliders?
175	E	DA		To reduce (theoretical) errors and improve accuracy, which aspects of monte carlo event simulation is most crucial and need to be improved?
176	E	DA		How can we reject the background effects from the real signal?

177	E	DA		How well can different generators simulate various background, how to make data modeling in hadron collider physics? how to estimate systematic errors correctly and completely in physics analysis? what's the challenge in the analysis method or in statistics at LHC experiments?
178	E	Early Physics	DA	During the first months/year of LHC running taking continuous good quality data is likely to be difficult and at times impossible. How are the LHC experiment's early physics anaylses affected by this? and how do the strageties for early physics take this into account? How difficult is it likely to be to use data from this period in order to get the first Xfb^-1 of data required for these early analyses?
179	E	Early Physics		First data. What can be the topics of physics studied with the first data with the background from the hadron collisions?
180	E	Early Physics		LHC commissioning and early physics - Roberto Tenchini: What are the pessimistic scenarios from "day one" physics at LHC? What will the cooperation (analysis, data comparison) between experiments look like? How to recognize the individual contributions to the experiment?
181	E	Early Physics		How can we best profit from early data to make sure that we understand new physics signals?
182	E	Early Physics		What will be the first task at the LHC? Specifically, what will the ATLAS and CMS detectors be expected to do at the very first run?
183	E	Early Physics		What are the issues to look out for in LHC start-up, particularly what are the techniques to get a good background estimate?
184	E	Early Physics		Which could be the very first 10 papers published by LHC experiments?
185	E	General	All subdet	What kind of new detectors in particle physics are we looking at for the next years: it will be just an improvement of current one or we can expect a new generation of particle detectors?
186	E	General	DA	Trigger, reconstruction, identification and so on are as many sources of uncertainty. Thus, how reliable are the results given by HEP experiments ?
187	E	General		What is going to happen with CDF and D0 after 2008?
188	E	General		When exactly will the LHC start running on physics or to be more precise, what is (realisticly) the timescale for first discoveries at the LHC?
189	E	General		Could the hadron collider physics or the technologies developed till now have applications different by the upstanding research in the High Energy Physics? Are there people thinking to that?
190	E	Muon	Calorimetry	In the LHC experiments as well as in the TEVATRON experiment, tau reconstructions are based on the hadronic decay modes of taus. What are the detector requirements for allowing tau reconstruction from the leptonic decay modes of taus? Can/will this be done at the ILC?
191	E	Muon		How much is it feasible to think that we can study whole upsilon and J/psi family via its muonic decay?
192	E	Muons	DA	To Darien Wood and Biete Heinemann: Muon isolation is a very important feature in many of the ongoing analyses and has relevance in all of the respective physics analysis groups (at least on CMS). This is because isolated muons offer a very robust way to eliminate unwanted backgrounds (like QCD). They are also a prominent feature of BSM physics. Now, the Hadronic Calorimeter is estimated to have a high noise threshold (order ~ 10 GeV). This implies low pt jets (which have a overwhelmingly high cross-section) will be drowned out by noise. Thus, the jet-reconstruction algorithms will not reconstruct them. I am worried about muons that come from low pt jets being mis-tagged as "isolated", because their jets are not energetic enough to get reconstructed. Should this phenomenon be a cause of concern?
193	E	QCD	Heavy Ion	What is the best method to extract elliptic flow signal?
194	E	QCD	Heavy Ion	How strong would the contribution from non-flow effects in the flow analysis be at LHC operating energies? What is the best way to get rid of non-flow contribution in the flow analysis?
195	E	QCD		What progress has been made on the evolution of parton density functions for use in simulating hadronic events.
196	E	Statistics	DA	How do you account for the ample supply of systematic errors in your analysis?
197	E	Statistics	DA	It's a hot topic in ATLAS, to decide whether we want to do "blind search" for unbiased result, or use traditional way to have more statistics but with prior that may affect our result. What is your idea of this tradeoff? Or in which type of channels/searches should we choose "blind search"?
198	E	Statistics	DA	I would like to hear about advanced analysis techniques like Neural Network and Random Decision Trees.

199	E	Statistics	DA	How do you think computational optimization strategies like genetic algorithms and neural nets will impact future analyses? Are they important only towards the end of a collider's lifecycle or in the future will they be employed more broadly?
200	E	Statistics	DA	How does a Markov Chain Monte Carlo (MCMC) algorithm work? How can I calculate the systematic errors for my Monte Carlo simulations best?
201	E	Statistics	DA	What sophisticated dataanlysis methods exist in order to extract data from Hadron Collider? How can we use loglikelihood methods?
202	E	Statistics	DA	What are the recommended statistical methods for searches and optimization? Specially in beyond Standard Model searches?
203	E	Statistics	DA	When making the first discoveries at the LHC experiments, how will systematic uncertainties (particularly from Monte Carlo modeling of signal and backgrounds) be taken into account?
204	E	Statistics	DA	I would like to see a reminder of the theoretical motivations for statistical methods and get some more insight in when approximations are allowed.
205	E	Statistics	DA	What is needed to either confirm or dismiss a physics model based on the experimental data collected?
206	E	Statistics	DA	How does one best optimize cut-/neural net-based analyses from a statistical point of view? Where are the similarities and differences? Which are the most common pitfalls to watch out for?
207	E	Statistics	DA	If experiments at LHC will remain the only experiments at colliders to test the TeV scale, how will the experiments guarantee that their results are independent, e.g. that the results of one experiment (ATLAS or CMS) are not biased by the results of the other one?
208	E	Statistics	DA	Which statistical techniques are most prevalent in the experimental community for distinguishing signals and backgrounds, both in Monte Carlos and in real data?
209	E	Statistics	DA	What is the difference between Bayesian and Frequentist methods? What can a theorist do to understand the pitfalls of each for a specific analysis? In particular given a 4 sigma excess for a particular process, how can understanding the statistics help a theorist take the excess seriously or not?
210	E	Statistics	DA	What will need to be done in order to quantify the systematics associated with LHC data, MC and analyses?
211	E	Statistics		What are the most reliables techniques to interpret data? How to interpret a data excess as a discovery or simply as a fluctuation?
212	E	Statistics		What is the right way of calculating an efficiency when n is small?
213	E	Statistics		I'm interested in multivariate analysis tecniques.
214	E	Statistics		How do multivariate methods work that are used in particle physics only since recently like boosted decision trees or support vector machines and how do they relate to more common methods like likelihoods or neural networks. What is the purpose of blind analysis and how does it work, pros/cons?
215	E	Statistics		The recent announcement of a meson containing 4 quarks at Belle, seems to defy the quark model. What statistical techniques are utilised to distinguish whether discoveries like this are not statistical fluctuations?
216	E	Statistics		There are several methods available for statistical data analysis, such as Neural Network, Boosted Decision Trees, Likelihood, and many others. What are the main advantages and disadvantages of these tools?
217	E	Statistics		Which are the basic differences and their implication of the frequentist and bayesian approach to the limit calculations in a counting experiment?
218	E	Statistics		what will be contribution error in measurement due to alignment and intrinsic resolution of the detection system itself .
219	E	Statistics		How do we determine the statistical significance of an unexpected bump in our data? If we see a deviation that didn't initially fit with the purpose of a search, how do we quantify the statistical significance of moving the area of interest to the place where we see the deviation? How do we determine the new area of interest?
220	E	Statistics		What are the details of techniques to discriminate signal from backgrounds such as templates or Neural Networks? What are their main caveats?
221	E	Statistics		I am interested in search physics and statistical methods used in the search analyses. The topic will be covered in the lecture given by Ricardo Piegaia. I would like to hear about methods used in Higgs-limit calculations and examples and their difference.
222	E	Statistics		On advanced multivariate analysis techniques such as neural nets or boosted decision trees : which situations/analyses are these best suited to; what are the pros and cons of each; and when can they be applied sensibly to data?

223	E	Statistics		What are the conditions necessary for claiming a discovery? The oft cited figure is 5 sigma significance. However, past experiments have shown that this is not always completely rigorous. For example, there have been several instances when candidate new particles that were initially quoted as having a five sigma significance disappeared as more integrated luminosity was accumulated. Thus, what are some considerations that must be taken into account when using 5 sigma significance as a standard indicator of discovery?
224	E	Statistics		How does Bayesian statistics work?
225	E	Statistics		Statistics. How best to utilize blind analysis methods and how to include systematic uncertainties in statistical analysis of small signals?
226	E	Statistics		How does one cope statistically with searches where one does have some evidence of a signal but it is not conclusive, i.e. when one is at the borderline between setting an upper limit on a cross-section/branching ratio and actually measuring it?
227	E	Statistics		How to "read" experimentalist's plots, specially statistical and systematic errors, backgrounds, etc?
228	E	Statistics		For the evidence of pentaquarks why different labs explored completely different results?
229	E	Statistics		Describe statistical methods for analysis when the searched signal is weak or non-significant
230	E	Statistics		Theory behind the estimation of systematics and its implementation.
231	E	Statistics		How much known, studied and reliable are the neural networks for complex (tens of variables) scenarios discrimination?
232	E	Statistics		In a search analysis, how to set statistically sound limits if no signal (or a marginal signal) is found.
233	E	Statistics		With the development of statistics and computing, there are many multi-variable tools for data analysis now. While this tools give us better and better efficiency, it becomes more and more difficult to evaluate their errors, especially for some algorithm need "training"? So how should we do error analysis when we are using such tools?
234	E	SUSY		To Steve Martin: Much of the analysis effort in the SUSY group within CMS is motivated by conservation of R-Parity. This implies the existence of the LSP, which leaves its signature in the detector in the form of missing transverse energy. My question is: how sound are the theoretical arguments for R-Parity conservation? In the experimental world we have to quantify our confidence levels with errors and uncertainties. What are the theoretical uncertainties involved in the claim of R-Parity conservation, if any, and how confident is the theoretical community on this issue?
235	E	Tracking	All subdet	In which direction is R&D work for rad-hard detectors proceeding? (I think of an upgraded LHC scenario with higher particle fluxes.) Is there a chance of keeping relatively light gaseous detectors for tracking in the outer regions of the detector, or will it be all silicon in the future?
236	E	Tracking	All subdet	Which information can be derived from standard model candles or data in general, for getting calibration information or efficiencies as it is the case for b tag efficiencies and mistag ? I am interesting on those data driven methods with particular emphasis in b tag efficiency measurements.
237	E	Tracking	All subdet	What effect multiple interactions in a single bunch crossing could have in reconstructing final states of a single PP collision?
238	E	Tracking	Calorimetry	In DZero detector, at the innermost level we have tracker after that we have Calorimeter. There is always some loss of energy because of the interactions of the particles with Tracker and therefore the energy deposited in Calorimeter is not correct. Can we design a detector in a way that we have one layer of Tracker then one layer of Calorimeter and again one layer of Tracker then Calorimeter and so on... to reduce the energy losses in Tracker. Is it possible to design such detector. If we made it how much efficient it will be in comparision to our present detectors.
239	E	Tracking		What techniques were used in the alignment procedures for the D0 and CDF experiments and how do these compare to those considered for the alignment of the LHC detectors.
240	E	Tracking		What will the next generation of tracking Detectors look like?
241	E	Tracking		How do we decide what to use for track quality cuts, and how is a "precision hit" defined?
242	E	Tracking		There are many particles at hadron collider. What kind of method is used for track finding? Same as electron collider?
243	E	Tracking		I would like to know a bit more about tracking and events reconstruction
244	E	Tracking		What problems occurred during CMS-tracker construction, what solutions were found and what consequences are drawn for future tracker design plans?
245	E	Tracking		I'm rather confused about exactly what happens at the SIM level in CMSSW. I understand that at the GEN level, physics events are generated by Pythia, and at the SIM level, the detector geometry is introduced. But, every time I compare the vertex positions in the GEN and SIM levels, the first and second vertices are in the same places. This seems odd, since one would think letting physical particles interact with the detector would drastically change vertex positions.

246	E	Tracking		In a high rate experiment one gets event mixing in the tracking detectors, e.g. a TPC. How can one extract the single tracks out of the information, and how can one do this on hardware level?
247	E	Tracking		I would like to attend a lecture on track reconstruction, that is not only focussing on how the detectors work in principle, but also detailed information on actual reconstruction of charge tracks. How to actually get tracks out of your detector hits and how the track fit is performed in detail? How do experts in the field plan to cope with the high occupancy at the LHC detectors, expected with higher luminosities?
248	E	Tracking		How do the silicon tracking detectors compare between the Tevatron and LHC experiments and how do the differences relate to the needs and specifications (eg energy, luminosity) of each detector? How will the tracking detectors in ATLAS and CMS be modified for the LHC upgrade?
249	E	Tracking		What is the state of the art for tracking algorithms? What are the mathematical tools used, their performances and characteristics?
250	E	Tracking		The history and future plans of tracking methods. This is closely related to the things I do and work with, and a more definitive knowledge of the area would aid me in helping with future design work.
251	E	Tracking		What are the features of the silicon detectors at LHC?
252	E	Tracking		How do you align 400 m3 detector?
253	E	Tracking		Are there special techniques to reduce systematic errors of the tracking for hadron event?
254	E	Tracking		How are tracks in a tracker reconstructed from a collection of hits measured by silicon strip detectors?
255	E	Tracking		At such high luminosities, how do you burrow through and find your primary event vertex?
256	E	Tracking		Given the large number of interactions expected at Atlas and CMS, how do tracking and vertexing algorithms remain useful in distinguishing interesting physics from the massive number of underlying events?
257	E	Tracking		What are the algorithms used for vertex finding and the track fitting?
258	E	Tracking		Is there a theory for the difference of the tracking efficiency between particle and anti-particle?
259	E	Tracking		What physics processes are used for calibration of the tracker and why?
260	E	Trigger	All subdet	What are the details of the event triggers, for example: how does the signal convert into computer bits?
261	E	Trigger	All subdet	How the DAQ is operated and how is the trigger strategy decided? How particle Id is determined in detectors?
262	E	Trigger	DA	Which most promising ways are known to get the trigger efficiency for various physics channels with real data?
263	E	Trigger	DA	How well do you think present research strategies account for the possibility of the unexpected? That is, what if any danger is there that with current methods evidence for unexpected new physics would be overlooked or otherwise missed.
264	E	Trigger		I would like to understand better the trigger strategy in LHC. How are the experiments going to deal with such high instantaneous luminosity events? Since the average number of interactions per bunch crossing is ~25, what are the strategies to keep trigger rates under control?
265	E	Trigger		How are Trigger/DAQ systems validated in general, and specifically in early running? If you never see the data you throw away, how do you know that you're triggering on the interesting events? Can it be done without any use of Monte Carlo data?
266	E	Trigger		In CMS and ATLAS experiments what is the expected total trigger efficiency for W and Z in the various decays mode? And for rare channels at high luminosity such as Bs->mu mu? What are the major background sources and trigger cuts that affects such efficiencies?
267	E	Trigger		Explain the various levels of trigger processes (probably in general, considering all the signals being looked for), and the difference between the Levels and where they occur.
268	E	Trigger		ATLAS Trigger System: What are the basic criteria used by level 1 trigger to define "regions of interest" data? How do the physics selection criteria depend on luminosity, trigger thresholds, etc.
269	E	Trigger		What exactly are the specific selection criteria that are being used by lvl-1 trigger system of ATLAS at LHC? What is the best way of making selections so that we can really observe something "unexpected"?
270	E	Trigger		What's the risk of discarding signals of new physics because of triggering processes?
271	E	Trigger		What are the main lessons learned from Hadron Collider Experiments considering the trigger at the start of data taking?
272	E	Trigger		To which extent can one use calorimetric information on first level triggering in a high rate environment and which techniques are used to do this?
273	E	Trigger		Triggers eliminate a great amount of the activity in a collision. If theory is missing a piece in the region that we ignore, we could be missing important physics. Is there a way to change the triggers so that we can examine these areas later on in the LHC?

274	E	Trigger		What are the hardware and software technologies used by the LHC experiments to handle the very high event rate and large event size?
275	E	Trigger		At what rate will minimum bias events be collected and is this something which may be altered later if desired?
276	E	Trigger		What procedures would you propose to make triggering more efficient?
277	E	Trigger		How does the Trigger work? And why should I implement a Trigger-aware analysis?
278	E	Trigger		I heard about different approaches in Trigger designs for the ATLAS and for the CMS. Could you please give an overview of Trigger challenges at the LHC?
279	E	Trigger		What are the primary/secondary/etc triggers used in LHC detectors? (and the strength of these triggers to distinguish BSM scenarios, e.g. SUSY, little Higgs and others)
280	E	Trigger		Can we control trigger rates at the run time of the detector? If yes, How?
281	E	Trigger		ATLAS Trigger System: What high-level trigger selection algorithms can be used for the final event selection and how they can be optimized?
282	E	Trigger		As a theorist I'd like to know more about the types of background cuts and triggering that are going to be used at the first LHC runs.
283	E	Trigger		How confident is the people about the rejection of events via HW triggering? I mean, what are the criteria for discarding of events?
284	E	Trigger		How can one assure a stable, efficient and synchronized operation and triggering of many (~1000 and more) digitalizing devices using fast sample electronics (e.g. 200MHz Flash-ADCs)?
285	E	Trigger		With the large luminosity of the LHC , what improvements have been made over the trigger systems employed by CDF and D0? Tevatron experiment trigger systems are limited by the event storage rate. Has this been improved for the LHC experiments? If so how?
286	E	Trigger		How do the trigger strategies of some of the experiments at the Tevatron and the LHC (CDF, D0, ATLAS and CMS) affect the B physics potential of those experiments?
287	E	Trigger		What are the Level 1 triggers for ATLAS and CMS?
288	E	Trigger		How is the synchronization of a large detector setup with many sampling clocks etc. done?
289	E	Trigger		What are the possible physics triggers for ATLAS Experiment? Are there any special triggers for Higgs Physics? How is ATLAS planning to keep the trigger rate low and linear but keep the efficiency high? Also how is ATLAS going to detect Tau objects?
290	E	Trigger		Can you give a detailed description of some of the algorithms used to make trigger decisions?
291	E	Trigger		Experiment: what's the most concern in the L1 trigger? How to balance the user flexibility and the efficiency rate?
292	E	Trigger		Given the large luminosities at the LHC, how do experimentalists plan sort through all the data and be sure to trigger on the "right" events?
293	E	Trigger		What kind of online monitoring is available for free running DAQs at high rates?
294	E	Trigger		How to trigger the events in LHC? Is computing power enough?
295	E, T	Accelerator	General	Recently I heard something about LHC upgrade to even higher luminosity than the current plan in the future. It would be great to hear something at the school about possible scenarios with such higher luminosity.
296	E, T	All subdet	HF	B physics. What are the performance in the B physics analysis of CMS with respect to the LHCb experiment?
297	E, T	Calorimetry	DA, QCD	What is the link between our knowledge of the low energy processes that are fundamental to a Montecarlo physics simulations like GEANT and our ability to establish the jet energy scale for a high energy physics collider? Wat are the strategies to reduce the impact of the uncertainties on the hadronic shower shape on the resolution on the jet energy scale?
298	E, T	Calorimetry	QCD	What is a jet and how do you reconstruct it ?
299	E, T	Calorimetry	QCD	Regarding MC simulations, I'd like to know how the usually simple jet finder algorithms (such as UA1) used for theoretical analysis may affect data comparison.
300	E, T	Calorimetry	QCD	What is the substructure of Jets and how can we access it? Can we exploit this information in cross section analysis? Can we use it to distinguish underlying event and hard interaction?
301	E, T	DA	BSM	Most searches for new physics rely on a set of assumptions that reduce hundreds of parameters into an easily definable base set that can be used as benchmarks. How will we balance the trade-off between pushing hard on the benchmarks by using intensive signal-based cuts while capturing as much of the phase space as possible to avoid missing a potential signal?

302	E, T	DA	General	If an excess is measured for a Standard Model decay, how will researchers take the next steps to figure out what model is responsible for the excess? It seems that when looking for BSM proof, you should be looking at many different types of signatures, with so many different people working on them, who will correlate them all? Is this the responsibility of theorists or physicists, and how will they do it?
303	E, T	DA	Higgs	I would like to know about how QCD backgrounds will affect the search for Higgs bosons. Also from the experimental side, how well will the CMS and ATLAS detectors be able to perform at this. What sorts of conditions need to be met to do an effective search?
304	E, T	DA	Higgs	What are the most limiting problems facing the possible discovery of the Higgs from both an experimental and theorist perspective?
305	E, T	DA	Higgs	How just by looking at the data that comes from the LHC would one be able to determine if the LHC has discovered the Higgs Boson?
306	E, T	DA	QCD	What can we learn from the underlying event?
307	E, T	DA	QCD	What is the theoretical precision needed for precision physics at the LHC? In particular, is a next-to-leading QCD calculation accurate enough? Are there some particular kinematic regions and/or processes that requires a greater accuracy?
308	E, T	DA	QCD	What are the major issues I should be aware of when I am trying to use MC simulations to describe a data sample, particularly those involving multijet final states?
309	E, T	DA	SM	How was the top quark discovered, with specific analysis details?
310	E, T	General		What sorts of signatures are currently considered hopeless, i.e., what signatures are we unable to distinguish from background and why?
311	E, T	Tracking	Muon, HF	What are the prospects for CMS and Atlas in doing B physics compared to LHCb? What are the advantages and disadvantages of the general purpose detectors?
312	E, T	Trigger	BSM	One key trigger quantity to be sensitive for new physics on the Atlas Level-1 Trigger is the missing transverse energy. How different is the missing transverse energy spectrum for different physics models beyond the Standard Model and are there scenarios in which the sensitivity can be lost?
313	E, T	Trigger	BSM	What are the effects of the triggering and events reconstruction in models beyond the SM?
314	T	BSM	Cosmology	What observables is important in order to distinguish between different theoretical models in direct searches of a dark matter candidate?
315	T	BSM	Cosmology	Can the LHC be used to detect dark matter signals, or just provide bounds and constraints on dark matter specifics.
316	T	BSM	Cosmology	For the theoretical models to be discussed: of those which have feasible dark matter candidates, and thus typically have signals involving missing energy, are there any methods to easily distinguish between their collider signatures?
317	T	BSM	Early Physics	What are the most feasible types of searches for new physics in the beginning of LHC?
318	T	BSM	General	Suppose the Higgs boson/SUSY particles are never discovered. What are the alternatives and are there any signatures to these alternatives that will be observable at the LHC?
319	T	BSM	General	Given that results from MiniBooNE, suggest that neutrino oscillations do not explain the results of the LSND experiment. Does this give us a hint of physics beyond the Standard Model?
320	T	BSM	General	Are we prepared to face any non-discovery scenario from HEP at LHC?
321	T	BSM	General	If there are no obvious signals of New Physics seen after several years of LHC operation, will theorists be able to draw any conclusions?
322	T	BSM	General	If/Once new physics is found, how do you go about determining what is the underlying theory which describes it? Which kinematic distributions give us enough information to begin distinguishing between various models? Does there need to be an ILC to determine answer those questions?
323	T	BSM	General	Concerning the future of HEP and a possible construction of the ILC what discoveries do the LHC experiments have to make? Could and should we actually ask the public to fund a larger and more expensive machine for precision measurements in case only the standard model Higgs and no new physics are discovered?
324	T	BSM	General	How does the physics potential of a luminosity upgrade of the LHC compare with a TeV-scale e+e- linear collider (taking into account the recent budgetary effects on the latter's timing)? This question has a synergy with Question 1, as the ILC/CLIC will have different capabilities than the LHC for studying the properties of any previously undiscovered particles at the TeV scale.

325	T	BSM	General	What should a theoretical particle physicist know about mathematics? Group Theory, Differential Geometry, Topology? How important would they be in actual research? Would new physics beyond the standard model require people to know a whole lot more about mathematics?
326	T	BSM	HF	What processes with change of flavor are the most promising to be detected in the LHC?
327	T	BSM	Higgs	What consequences would the non-observation of the Higgs particle have and, based on the current knowledge and models, how likely would this be? Which other scenarios could explain mass?
328	T	BSM	SM	I would like to know some theory behind the use of 'effective lagrangians' (when some 'unknown' BSM physics enters at a given scale), e.g. how does one construct the allowed couplings, dimensions of operators etc?
329	T	BSM	SM, General	Spontaneous breaking of SU(2) × U(1) symmetry is largely untested experimentally. I would like to have answered to what extent the future generation of high energy experiment can test this symmetry breaking and what experimental methods are applied. On a more theoretical note I would find it interesting to learn about the how ideas beyond the Standard Model can facilitate such a symmetry breaking.
330	T	BSM		What are the most promising candidates for physics beyond the standard model apart from those discussed frequently, e.g. supersymmetry or extra dimensions. Why are they more/less favored and what are the experimental limits?
331	T	BSM		Why the ADD model solve the hierarchy problem?
332	T	BSM		What are the different event signatures that are expected to be observed to confirm the emerging physics theories beyond the Standard Model (SUSY, Extra Dimensions, Higgsless theories,...) ?
333	T	BSM		If not Higgs from Large Hadron Collider then what other signal can be expected for EW symmetry breaking?
334	T	BSM		Which kind of new Physics researches can we perform at Hadronic machines?
335	T	BSM		What is the other way of going beyond the Standard Model if it appears that there is no Super-Symmetry?
336	T	BSM		Which assumption is unlikely in mSUGRA?
337	T	BSM		Is there a good back up plan for Higgs?
338	T	BSM		I want to have an overview of the origins of models beyond the Standar one.
339	T	BSM		I would like a clear explanation of the potential theories beyond the SM (SUSY, Technicolor, etc.), what are the theoretical considerations behind each, and what sort of signals at the LHC would be expected for each.
340	T	BSM		What main features (if any) distinguish the phenomenology of the most popular BSM (excluding SUSY) models? What kinds of distributions would you look at to highlight those differences?
341	T	BSM		In case no experiment at LHC finds the Higgs, what theories are there not requiring the Higgs particle?
342	T	BSM		What are some of the possible new physics that will come out of LHC? I know large extra dimensions is one, as well as evidence for super-symmetry. What sorts of things are signatures for these possibilities?
343	T	BSM		If signals are seen in the flavour sector which disagree with SM predictions (for example enhanced branching ratio for Bs->MuMu decay), how can they be used to distinguish between different BSM scenarios, e.g. between the MSSM and the NMSSM or the ESSM?
344	T	BSM		The Standard Model is a theory of interactions, and one of the reasons that SUSY is appealing is that these interactions are the same. Non-SUSY BSM theories – modified Technicolor, compositeness, little Higgs, LED – are seemingly less popular these days. Obviously SUSY has many attractive aspects, but is one of the reasons for this disparity simply that it's a lot easier to write Monte Carlo generators for SUSY, and to produce lots of simulated data at lots of different points in parameter space, whereas this can't really be done with a theory of new interactions?
345	T	BSM		What final state topologies are sensitive to a wide range of various models of new physics beyond the standard model.
346	T	BSM		What do the several beyond the SM theories have in common from the experimental point of view? That is, are there typical experimental signatures which are expected for most of these theories?
347	T	BSM		Any time a new energy frontier is passed, a new regime of particles has become accessible. Aside from the Higgs boson, what types of particles are expected to emerge from the LHC (Susy particles, dark matter candidates)? What are the motivations/differences between various Susy models?
348	T	BSM		If new physics is found at the LHC, what tools and techniques do we have to distinguish models which predict similar particles? A good example of this is a particle like the Z'. There are many BSM's that predict extra U(1) gauge bosons. I am also interested in hearing a discussion about searches for TeV scale composite particles; in particular, right-handed top physics in a composite scenario.
349	T	BSM		In case of deviations from the standard model, how will we find out if it is SUSY or an other model?
350	T	BSM		Where do we go if LHC can not detect the Higgs?

351	T	BSM		What are the experimental signatures of different beyond the SM scenarios, how do they compare and what are their common features?
352	T	BSM		What is the expected luminosity and year that typical new physics signals are discovered or ruled out?
353	T	BSM		If there is new physics, how can we distinguish between competing models?
354	T	BSM		What kind of signals would we have to look for in order to determine which model beyond the standard model is correct whether it be SUSY, little Higgs, technicolor, etc.?
355	T	BSM		How exactly will our view of the standard model (or other possible theories) change will the discovery of a fourth generation of leptons or quarks? What does this mean for the Higgs boson?
356	T	BSM		Higgs sector. The main target of LHC is the Higgs boson search. How are the different scenarios beyond the standard model?
357	T	BSM		If we discover clear signals which disagree with the Standard Model in some way, how much model independence will there be in interpreting what is physically happening?
358	T	BSM		How reliable is Monte Carlo data for these unknown BSM processes? What are the advantages of searching for a particular model vs. a model-independent search?
359	T	BSM		What are the chances to discover something unexpected at LHC? Besides extra dimensions, SUSY, etc…
360	T	BSM		My third question is about "Beyond Standard Model" studies : SUSY is a beautiful concept, TechniColor seems an interesting path to follow as well, etc. As for the Higgs boson, debates can be very "tough", and hopefully, experiments should give hints soon. How well will LHC be able to give limits on such theories ?
361	T	BSM		In case LHC doesn't see the Higgs boson, what are the possible alternatives to the Spontaneous Symmetry Breaking as a "mass giving" mechanism?
362	T	BSM		Further the MSSM theory, which other theories allow the expectation of new physics at the TeV scale ?
363	T	BSM		The main goal today is to detect the Higgs boson to confirm the Higgs mechanism. Beyond Standard Model, several models were introduced to avoid many problems observed in the GSW theory suggesting a New Physics beyond SM. Will the current and upcoming experiments be capable to determine the post-SM physics?
364	T	BSM		Could you give a comment on the potential of LHC for new physics and the possible substitutes of higgs?
365	T	BSM		If the higgs is discovered at Tevatron or LHC, which detector type will be the next structure?
366	T	BSM		There are several standard-like models predicting the existence of fractionally charged massive hadrons. How can those models be tested at the LHC?
367	T	BSM		Does Beyond Standard Model physics offer any new experimental approach? Suppose there is a new force, do you expect things like confinement ?
368	T	BSM		With so many possible extensions of the standard model, many with similar signatures, how quickly will it be possible at the LHC to determine which possibilities are the most plausible?
369	T	BSM		Is it possible to have ambiguous signals? i.e., is it possible not to be able to associate a signal of new physics to a specific particle predicted by some theory, but to more than one predicted particles? If so, what is it possible to do in a hadron collider to solve this problem?
370	T	BSM		Of course, I hope the school will survey the frontier physics topics to be addressed at the LHC and their experimental signatures. But I would also like it if the school reviewed the current experimental limits on these theories beyond the Standard Model. Of the vast landscape of ideas for beyond the Standard Model physics, what has been excluded? Are there promising regions of parameter space that should be focused on? What measurements are theorists most eager to have?
371	T	BSM		Finally, I would like to see a review of the new physics signatures that will be accessible at the TeV scale, including supersymmetry. I am particularly interested in dark matter signatures. I understand that large missing transverse energy is a necessary condition for dark matter identification at the LHC, however it is not sufficient. What extra information will be necessary in order to identify this signature as dark matter? Where will this information come from? (i.e. astrophysics data? what experiments?)
372	T	BSM		QGP, Higgs boson, SUSY, dark matter – will we find them at LHC or we need the ILC?
373	T	BSM		What are the other (known) alternatives if no Higgs boson is discovered in the initial running of the LHC? What new experimental signatures might we need to look for to understand a Higgs-less world?
374	T	BSM, SM		What is the connection between the Hierarchy problem (is it really a problem) and the expectation of new physics at the TeV scale?
375	T	BSM, SM		If the Standard Model Higgs is not found, what are reasonable alternatives to mass generation?

376	T	BSM, SM		Are there up to now any experimental hints of a spontaneous symmetry breaking mechanism in particle physics, and if not are there any ways to introduce masses without such a mechanism?
377	T	BSM, SM		Which particles or states, that we hope to observe at the LHC (such as SUSY, black holes, extra dimensions, etc) are expected to decay into top quarks?
378	T	BSM, SM		What (and how likely, given electroweak data) are the theoretical scenarios that would give no discoveries (or really few) at the LHC?
379	T	BSM, SM		What could be the other way the intermediate bosons could get mass, apart from the Higgs mechanism?
380	T	BSM, SM		The gauge hierarchy problem is an important unresolved problem in particle physics. I would like to have a discussion on the theories which address its possible solutions.
381	T	BSM, SM		If the Higgs boson is not realized at the TeV scale, what are alternative mechanisms for generating masses to particles? And how are specifically the neutrino masses affected by these alternative models?
382	T	BSM, SM		Is there a probability that at LHC there will be a totally unexpected scenario?? I mean, that none of the present theory will explain the reality shown in these experiments?
383	T	BSM, SM		Which other models do we have to give mass to the particles, besides Higgs'?
384	T	BSM, SM		Are there other theories apart from low energy SUSY which give "a free view up to the Planck scale"?
385	T	BSM, SM		If the Higgs does not exist, what could we expect to see instead?
386	T	Cosmology	BSM	If supersymmetry is not found at LHC, is there any other approach to explain dark matter?
387	T	Cosmology	BSM	Which expectations in terms of amount of data needed exist for the candidates to Dark Matter?
388	T	Cosmology	General	What experiments are oriented to determine the possible dark matter candidates like gravitino and neutralino? and Is neutralino production the final answer for dark matter search?
389	T	Cosmology	SM, BSM	We know that cosmology is missing some mass and dark matter is one of the candidate. How much constraint does the cosmology data have on the Beyond Standard Model physics ?
390	T	Cosmology	SUSY	Why are sneutrinos rarely discussed as a possible dark matter constituent particle?
391	T	Cosmology		Besides dark matter which other cosmological question will be address by the LHC?
392	T	Cosmology		Are there any smokegun signals for the stable and neutral massive particle (i.e. cold dark matter candidate)?
393	T	Cosmology		If the dark energy and the dark matter are one of the "most embarrassing observation in physics", what is the potential reach of the LHC for shedding light on this issue? Could we ever get such an insight by other means, for example with the current (underground) experiments that try to detect dark matter?
394	T	Cosmology		Impact of collider dark matter detection from cosmological experiments.
395	T	Cosmology		What are the solutions of Dark Energy?
396	T	Cosmology		What properties of a WIMP could we expect to determine with LHC data?
397	T	Cosmology		What are the implications of different Higgs or particle models (SM, MSSM, 2 Higgs doublet, Higgs triplet, Technicolor, etc.) on cosmology? And viceversa, what measured cosmological constraints limit the particle models?
398	T	Cosmology		What is the future of collider physics and can collider physics ever probe the true background of space time.
399	T	Cosmology		I am also very interested in how cosmological constraints compliment the more traditional HEP experiments.
400	T	ED	BSM	In the lecture about extra dimensions, it would be interesting to see the connection and maybe even some calculations about micro-blackhole production - the probably only way of an experimental proof for extra-dimensions.
401	T	ED	BSM	Do string induced models, like RS, warped-throats provide phenomenologically testable scenarios at the LHC, with relatively constrained parameter space?
402	T	ED	BSM	I heard that some theories with additional dimensions predict possibility that mini black holes can be produced during proton proton collisions. Could you please describe these theories and ways of experimental discoveries of these black holes?
403	T	ED	BSM, SM	(How) Could theories beyond the Standard Model, like extra dimensions and string theory, explain the spontaneous symmetry breaking of the electroweak theory? In other words: what are their equivalents of the Higgs mechanism?
404	T	ED	General	How are time and space made?
405	T	ED	SUSY	To Eduardo Ponton: In what ways do the experimental signatures of Universal Extra Dimensions and Super Symmetry overlap, if any? Are they mutually exclusive/inclusive theories? Is there a consensus in the theoretical community as to which, if any, is more compelling? What does a hadron collider offer that a lepton collider does not in the context of this question, and vice versa?
406	T	ED	SUSY	I would like to know more about the most promising channels to search super symmetry and extra dimensions at the tevatron.

407	T	ED		In theories of LED gravity leaks or dilutes to these large extra dimesions. Wouldn't it be possible to think that some unknown forces from the extra dimensional volume would leak into our 4D world?
408	T	ED		One fascinating idea of explaining some problems of the Standard Model is the introduction of extra spacial dimensions. If one finds experimental evidence for the existence of this, how can one determine the right model and properties of spacial extra dimensions out of experimental signatures?
409	T	ED		I know that adding compact extra dimensions to our 3+1 spacetime manifold have the potential to generate Yang-Mills like theories. What other reasons are there that motivate the idea of extra dimensions?
410	T	ED		I would like to know in more detail the expectations about Extra Dimensions Measurements and Micro-Black Holes at the LHC
411	T	ED		I would like to gain a more concrete understanding of the experiments being planned at the LHC, specifically as regards to detecting/ruling out extra dimensional phenomenon.
412	T	ED		How to search for extra-dimentions in experiment?
413	T	ED		What kind of bounds can be placed on the size/scale of extra dimensions? How much is model-specific?
414	T	ED		Extra dimensions: In RS-models many arbitrary constants in the SM seem to be expressed through the curvature of the AdS-spacetime. As I am no expert on RS I would like to understand what the phenomenological constraints in these models are. What about other ideas like large extra dimensions which seem to solve the hierarchy-problem too?
415	T	ED		What are the most valuable channels to look at in a hadron collider to find extra dimension evidence, what precision do we need, what will be the uncertainties involved
416	T	ED		In case of extra dimensions, how can we see them in our 4D world? Are there scenarios for ED to be discovered at LHC? Which signatures should we look at?
417	T	ED		Some recent papers discuss the differences in the TeV-range phenomenology of Randall-Sundrum models and the Klebanov-Strassler solution from string theory. Are there other backgrounds that have been or should be investigated? How precisely does LHC detect KK modes of extra dimensional fields?
418	T	ED		Do extradimensional models have any "smoking gun" type signals? Are any of these signals general, or model specific?
419	T	ED		What are the possibilities of ATLAS and CMS to discover effects due to extra dimensions or black holes? What is the detailed theoretical background for these theories? What (experimental) techniques can/should be used to discover those?
420	T	ED		what would be the experimental signature of extra dimensions on collider experiments?
421	T	ED		Which are the extra-dimension scenarios that can have a role in current and upcoming hadron colliders physics? How recent or upcoming results could change them?
422	T	ED		As the RS Model should be understood as the "low energy" EFT of an yet unknown Quantum gravity, I ask myself to what energy scale the model can be trusted.
423	T	ED		Since I am now involved in diffractive physics, I would like to know, whether there is a possibility to use diffractive events for the cases of Extra Dimensions/Black Holes measurements.
424	T	ED, SUSY		Topic: Extra Dimensions & Supersymmetry – For which experimental signatures with extra dimensions and supersymmetry be indistinguishable at the LHC? Are there any measurements that can be done at the Tevatron to remove the degeneracy?
425	T	General	BSM	To what extent do you think the Large Hadron Collider could help us to formulate theories of quantum gravity? Do you think we would have a good chance to observe quantum black hole production in the next few years?
426	T	General	BSM	Theoretically gravitons have a very low interaction cross section with matter and seems to be getting lower as theories are updated. The recent RS model is G->ZZ ~290fb. Question 2 is will the LHC run long enough to detect Gravitons?
427	T	General	ED	Can the LHC results influence our understanding of time? What will be the influence.
428	T	General		I always wondered if we actually are leading to grand unified theoty or simply are making philosophy.
429	T	General		Why do the particles have charge, color, mass, spin?
430	T	General		From a theoretical point of view which processes/calculations are still needed for the LHC?
431	T	General		High energy physics is a big field of research, using the largest machines in the world and with many scientists involved. Still the common knowledge and interest in this kind of physics is mainly reduced to the description in Dan Brown's "Angels and Demons". How can one explain the fascination and importance of high energy physics to a non physicist?
432	T	General		About the LHC discovery potential for heavy Majorana neutrino singlets in the process pp
433	T	General		What is expected from the hadron colliders of the next generation? It will give a final answer on supersymmetry and extra dimensions?

434	T	Heavy Ion	QCD	Are the anomalies observed at RHIC for the baryon–meson ratios giving us a hint to explain the nature of the hadrochemistry in the hadronisation stage in the evolution of the dense system formed in heavy ion collisions?
435	T	Heavy Ion	QCD	Is there direct evidence for deconfinement of partonic matter?
436	T	Heavy Ion	QCD	Can we directly measured a QCD phase transition?
437	T	HF	BSM	What are the sources of CP violation in the quark sector in other theories than the standard model (e.g. String Theory)? Can they make up for the matter--anti-matter asymmetry of the universe?
438	T	HF	BSM	Are there reasonable scenarios in which heavy flavor decays are the primary discovery mode for new physics?
439	T	HF	Higgs	If it is suiting the concept of your lecture, could you treat heavy-flavor particle correlations in proton-proton collisions? If it is suiting the concept of your lecture, could you treat the probable Higgs-mass and big crunch probabilities?
440	T	HF	SM	The B-meson provides a laboratory where theoretical predictions can be precisely compared with experimental results. So I would like to know a little bit more about the B-physics program at the LHC and tevatron and how the B-system can be used to answer some of the following questions : Why are the laws of physics not symmetrical between left and right, future and past, and between matter and antimatter? I.e., what is the mechanism of CP violation, and what is the origin of parity violation in Weak interactions?
441	T	HF	SM, BSM	Given the fact that LHCb was designed specifically for precision measurements in B physics, what other branches of particle physics would/could benefit from complementary analyses performed with data taken with the LHCb detector? Which channels are likely to be of interest?
442	T	HF	SM, QCD	First about Bc meson I am doing physics analysis on, thanks to the CDF's results, we are looking forward to investigating its properties at Atlas. It's well understood that the dominant Bc production at LHC and Tevatron energies is due to gluon-gluon fusion but also some other new issues say it could be from b-gluon production. Could you explain at this school about the b-gluon fusion effect at Bc production with different energy scales?
443	T	HF		What is the role played by strong phases in the extraction of physics parameters from CP asymmetries, for example the extraction of alpha from Bd->PiPi decays?
444	T	HF		If large CP violation (>0.02) is observed in the "golden channel", Bs->Jpsi phi, which areas of new physics would offer the best explanation of these effects?
445	T	HF		What do I have to do to measure the C and P violation in the Kaon decay? Should I expect similar results for the B-Meson?
446	T	HF		Question for Matthias Neubert: What models of New Physics you presonally consider as the most promising?
447	T	HF		I know almost nothing on Heavy Flavor Physics. How can I test the SM with those analysis?
448	T	HF		What is the current status of the analysis of rare physics such as the Bs-> mu mu process? What is the expected contribution of dedicated experiment LHCb and general purpose experiments CMS and ATLAS on this channel for the starting luminosity of LHC? And at high luminosity?
449	T	HF		What are the particular flavor physics projects and how are these likely to shed light on physics beyond the standard model?
450	T	HF, BSM	General	What signatures will be useful when identifying new fields of study to pursue, at energies higher than the TeV scale? Are there LHC upgrade possibilities within reach of any new physics ideas?
451	T	HF, QCD	SM	I understand that collisions at the LHC will be dominated by gluons in the initial state. However, I am interested in learning more about interactions where a b-quark is in the initial state. I know that at the evergy scale of the LHC, there is a non-zero probability of pulling a b-quark out of the proton. This seems to be over looked at times in the literature. It seems to me that b-quark initial states could be important in looking for new physics, specifically considering flavor changing processes where the coupling is proportional to the top mass.
452	T	Higgs	All subdet	LHC output : which are the different scenaris possible without Higgs bosons? What is the status of possible string-theory prediction tests at LHC? What will be the major challenges for the next generation of accelerators beyond LHC? What will be the impact of Qweak measurements on LHC physics?
453	T	Higgs	BSM	My first question is fairly theoretical : can such a conceptually beautiful idea as the Higgs Mechanism be totally erroneous ? When science becomes a matter of convictions, it has always impressed me how people can debate on the existence of - say - the Higgs boson.
454	T	Higgs	BSM	If in the LHC there is no evidence of the Higgs boson, what would be then the explanation for the electroweak symmetry breaking?, or If a Higgs is discovered at either LHC or Fermilab how one can interpret it as a standard model higgs or a SUSY higgs?

455	T	Higgs	BSM	Considering the LHC start-up, one of the hottest topics is the mechanism of electroweak symmetry breaking. I would expect from the lectures to give not only an overview of the different mechanisms on the market, but also that those are put into perspective with respect to recent measurements and an answer is given if it will be possible to distinguish between them at the LHC and how many years of data taking this would take. For example, what are the conclusions one would have to draw if the LHC "only" discovers a standard model Higgs particle?
456	T	Higgs	BSM	How physics beyond-standard-model scenario depends on an higgs boson discovery? and how different mass of such boson lead to different scenarios and leading signatures for an hadron collider experiment?
457	T	Higgs	BSM	I believe that we will see the Higgs particle at the LHC, which we have been searching for a long time... And then what would be the next? What would be the hottest issue deserving our every effort?
458	T	Higgs	BSM	If the predictions of the Higgs sector don't match the measurements at the LHC, what ways are there to make calculations and simulations of hadron to hadron collisions for different alternate models like MSSM, 2 Higgs doublet, Higgs triplet or even alternate models like Technicolor, and what physical bounds do they imply?
459	T	Higgs	BSM	How will new information about the Higgs boson parameters impact other theories like supersymmetry?
460	T	Higgs	BSM	What's after Higgs dicovery (if any)?
461	T	Higgs	BSM	If the Higgs Boson will not be seen by the LHC experiments within the boundarys predicted by the Standard Model, which explanations and alternative scenarios do "New Physics" theories offer?
462	T	Higgs	BSM	The LHC is expected to observe the Higgs, while the ILC may be used to precisely measure its mass, interactions etc. How can the LHC be used to obtain these measurements and how large of an improvement would the ILC make to these measurements?
463	T	Higgs	BSM	What impact on the SM will a discovery or an exclusion of the higgs particle have?
464	T	Higgs	ED	Beyond the SM/ Extra Dimensions - Eduardo Ponton: What is the "little Higgs" idea in the composite Higgs Model?
465	T	Higgs	General	Recent measurements have shown that a mysterious force, fills the vacuum of empty space and accelerates the universe's expansion. Physicists named this dark energy. At the microscopic scale, physicists have long known that "empty" space is not really empty; it is filled by a field that gives masses to quarks and leptons. In the Standard Model, this field is called the Higgs. My questions are the following: What is dark energy and why does it exist? Is dark energy and the Higgs field related? If they are related then what would be the possible signature? How do we answer these questions using data from the hadron colliders?
466	T	Higgs	QCD	What are the exact details of calculating or simulating cross sections for the production of Higgs particles from hadron to hadron collisions at different orders like NLO, NNLO, etc. for different processes gg, foton-foton, etc.? and, How trusted are these calculations or simulations in regards to measurements at the LHC, Fermilab or elsewhere?
467	T	Higgs	QCD	What will be the role of perturbative QCD resummations at the LHC (and more in general in future hadron colliders)? For instance, one of the major LHC process is Higgs production via gluon fusion. We know that gluon's distribution is peaked at small x, so a small x perturbative QCD resummation is needed for a reliable theoretical prediction about the Higgs production cross section. What about other processes, e.g. Drell-Yan?
468	T	Higgs	QCD, SM	How to calculate NLO and NNLO corrections for the Higgs production and for the major background Z+bb.
469	T	Higgs	SUSY	My analysis is a search for a charged Higgs boson, predicted by the MSSM. If such a particle with a specific mass is discovered by the Tevatron or the LHC, how would this fit with the multitude of BSM theories? For example, would it be clear which theory was correct, since H+ is predicted by multiple supersymmetric extensions to the standard model, all of which have many un-known parameters.
470	T	Higgs		In Higgs production at the LHC and Tevatron: Papers which show the dependency of the K-factor on the factorization and renormalization scale show a smaller dependency in LO as in NLO. This is somehow unusual and perhaps there is a explanation to it.
471	T	Higgs		What happens if the Higgs is not observed at LHC?
472	T	Higgs		What if nothing other than Higgs will be detected at LHC? How critical it will be for our understanding of matter structure?
473	T	Higgs		I have heard some friends talk about "composite Higgs." What are the possible constituent particles, and how will LHC detect or rule out this possibility?
474	T	Higgs		How different is the cross section for the Vector Boson Fusion (qHq->q,tau,tau,q) calculated at one-loop level if compared with tree level calculations?
475	T	Higgs		What happens if/when the we find a Standard Model Higgs Boson?
476	T	Higgs		What rare decays of neutral and charged Higgs boson are promising of to be detected in the LHC?
477	T	Higgs		Can we measure any of the Higgs quantum numbers in the LHC?

478	T	Higgs		What are the best decay channels for detecting Higgs at the LHC in various theoretical models (standard model, SUSY, little Higgs, etc)
479	T	Higgs		The search for the Higgs boson in the vector boson fusion channel depends strongly on the distributions of the third jet in the event. What is the current status of the modeling of these additional jets? What has been learned from Tevatron data about the different models (NLO, ME-parton shower matching and different pure parton shower models)? What is the contribution from the underlying event?
480	T	Higgs		What are the lower bounds (both theoretical and experimental) to the mass of the Higgs boson, what models allow for a very light Higgs (<10 GeV) and how would hints of a very light candidate for Higgs boson affect the search program at the Tevatron and the LHC?
481	T	Higgs		I'm interested to know what are the perspectives of Higgs discovery at different hadron accelerators. Is it possible to discover Higgs at Tevatron?
482	T	Higgs		Many particle physicists have seen the plot showing that discovery of the Higgs is possible after a short time of data taking at the LHC. How much more data will be needed before we can say with a amount of certainty we discovered a Standard Model or Super Symmetric Higgs?
483	T	Higgs		What happens if a Standard Model Higgs is discovered? Beyond an initial search, how do we explore the properties of the Higgs?
484	T	Higgs		If existed the Higgs boson, really we could answer what the mass is or simply answer how the mass is generated. I think the fundamental can not be defined but would not be elementary.
485	T	Higgs		How much emphasis should be placed/is placed on the Higgs signals in the low-mass region (in particular, Higgs to Tau Tau), given the recent constraints on the Higgs mass? Is there any outlook to improve reconstruction software for final state particles in these decays?
486	T	Higgs		Could it be that a neutral lightest higgs a candidate of dark matter? what could it be the possible mechanism?
487	T	Higgs		Different model predicts different higgs signal. How to find higgs and their model parameters?
488	T	Higgs		The current Higgs->4l analysis does not look at taus. Why not, and can we increase the discovery potential with the addition of taus?
489	T	Higgs		What will be the next step if we find two Higgs-s instead of one?
490	T	Higgs		I would like to know more about the different Higgs models(charged Higgs), how these arise and how searches at LHC would proceed.
491	T	Higgs		Higgs Boson Theory and Phenomenology - Howard Huber: If there will not be the direct (or indirect) information on mass of Higgs (f.eg. just noise in the Higgs channel), can we eliminate the Higgs from the SM?
492	T	Higgs		Which Higgs models might give us the most trouble? That is, which regions of Higgs model space will make it hardest to find the Higgs? What can we do about this?
493	T	Higgs		What are the theoretical and experimental implications if no Higgs particle is found at the LHC?
494	T	Higgs		What will the LHC be able to say about the Higgs mechanism? If they will find the Higgs, with what precision its properties (mass and couplings) will be measured? Does this precision depend on the Higgs mass? If at the LHC they won't find any Higgs, may we conclude that the Higgs mechanism is ''wrong'' or there is still some possibility of a very heavy Higgs? More in general, what will the LHC can say about the mechanism of EW symmetry breaking? And what will the LHC be able to say about new physics? For instance, will the LHC be able to see evidence for extra dimensions? What about SUSY? Will the LHC be able to distinguish between different SUSY models? If at the LHC no SUSY particle will be detected, can we conclude that SUSY does not exist in the real world?
495	T	Higgs		In what energy range is the (light) Higgs expected to be found?
496	T	Higgs		If the Higgs boson is not observed at the LHC, what impact will this have on the Standard Model?
497	T	Higgs		Can you describe in detail the experimental constraints on the Higgs mass? What are some necessary features for theories of new physics?
498	T	Higgs		Topic: Higgs Theory and Phenomenology - We often use the analogy that boson exchange represents manifestations of fundamental forces. The force analogy would describe electrons scattering via photon exchange as a manifestation of the electromagnetic force. This analogy is never used to discuss process that involve Higgs bosons. In other words, the Higgs is not a quantum of any “force”. Why doesn’t the force analogy apply to the Higgs? Which assumption is satisfied for the other bosons but not for the Higgs?
499	T	Higgs, BSM		Which are the most promising alternative mechanisms for the Electro-Weak Symmetry Breaking if the Higgs model is wrong?

500	T	Higgs, SM		What are the implications of the very low neutrino masses on the Higgs mechanism as it stands now in the Standard Model?
501	T	Higgs, SUSY		What are the major differences in the standard model higgs sector and the supper symmetric higgs sector?
502	T	QCD	BSM	I would like to learn more about the physics of multi jets events at LHC.
503	T	QCD	Heavy Ion	Hadronization and decays: within nuclear scales or beyond them? How do high-energy and medium energy QCD dynamics relate in the search for the mechanism of confinement? How is confinement physics related to quark-gluon fluid and/or color glass condensate?
504	T	QCD	Heavy Ion	Will the present knowledge of the radial flow qualitatively explain the experimental results when applied to the pp and PbPb collision data al LHC?
505	T	QCD	Heavy Ion	Is chiral symmetry restored, as predicted by QGP?
506	T	QCD	Heavy Ion	Which specific physics study should i choose to carryout in order to clearly understand the collision dynamics and the QGP formation?
507	T	QCD	Heavy Ion	Is DPM a suitable model to understand short range correlations?
508	T	QCD	SD	Could QCD be hiding evidence of strong dynamics if its always cut out as noise?
509	T	QCD		How do we calculate the cross sections of events with hadronic jets, and what precision can we achieve?
510	T	QCD		Uncertainty in structure functions in the TeV region brings uncertainty in SM predictions. At LHC we are going to search for deviations from SM and to improve structure functions. How can we do these two operations at the same time?
511	T	QCD		Precisely how are parton distribution functions extracted from data?
512	T	QCD		The accurate computation of physical process at hadron colliders requires good knowledge of parton distributions of the nucleon and their uncertainty. Is this aspect of physics under control?? In HERA the parton density functions were explored just up to 100 GeV in a quite strict y range. How do you think that the uncertainty on the rest of the range will affect the measurement done at the LHC?
513	T	QCD		How the resummation is done in QCD in Leading Order and Next to Leading Order?
514	T	QCD		How do methods, other than lattice QCD, incorporate non-perturbative effects and can those methods be folded in with lattice QCD to simplify calculations on the lattice? Or can the lattice provide input to simplify calculations in other methods? I'm thinking, in particular, of QCD sum rules, resummation methods, and perhaps other topics to be covered by Giulia Zanderighi.
515	T	QCD		The forthcoming experiments will explore high energy regions which require resummation techniques at small x variable, how much the next-to-leading resummations should affect the QCD predictions?
516	T	QCD		Many QCD cross sections are nowadays measured to high accuracy, how do we take into account higher order corrections (NNLO)? How precise are predictions? What are the limits?
517	T	QCD		What are underlying events and how they are modeled in event generators?
518	T	QCD		How is hadronization modelled theoretically and implemented in MC? in particular what are the differences/caveats to look out for?
519	T	QCD		Will Long Range Correlations be quite significant in pp collisions at LHC energies?
520	T	QCD		Why the study of the QCD is different at the LHC and at the Tevaton and in what the QCD we understood at fermilab is going to help us to understand the QCD at the LHC?
521	T	QCD		The CDF Collaboration has determined the partonic content of the pomeron, taking advantage of the different sensibilities of the various processes. The gluon density is measured in agreement with the ZEUS result, but the measured rate at Tevatron is significantly lower than expected.Who can be explain the disagreement between the rate of the Tevatron measurement and the expectation from HERA?
522	T	QCD		Is it possible to choose the best Parton Distribution function among those that are presently available?
523	T	QCD		What are the best early measurements at the LHC to constrain the proton PDFs since uncertainties in the PDFs account for a large part of the monte carlo systematics for certain Standard Model processes?
524	T	QCD		How will the gluon pdfs be measured during early LHC measurements?
525	T	QCD		In light of the recent results from HERA and the Tevatron on proton structure, what is the current state of parton density function sets such as CTEQ or MRST in particular for use at the LHC? What could be done with early LHC data to improve matters?
526	T	QCD		how do we make the PDF generators, why do they give such different results, what are the best channel to find out how good or wrong they are?

527	T	QCD		How the different data models and analysis models are formed in hadronisation?
528	T	QCD		Can we hope in a generalized version of the factorization theorems in QCD in order to explore (by resummation and beyond) the complete energy region which allows perturbation theory?
529	T	QCD		What is the underlying event?
530	T	QCD		Is there anything that LHC can tell us that will help in constructing the gravitational dual to QCD?
531	T	QCD		There are many different parton distribution functions available to generate your MC (cteqX, etc). How consistent are all these pdf's with each other? Are there cases where using the different pdf's results in drastically different MC?
532	T	QCD		What would be signatures of new Physics from QCD signals at LHC?
533	T	QCD		How to distinguish "Hidden Valley" let say Exotic Jets from the QCD jets ?
534	T	QCD		How well can we extrapolate our knowlede of PDF's from e.g. HERA/Tevatron to the LHC, where does the scale dependence enter and how can we extrapolate theoretical uncertainties?
535	T	QCD		I roughly understand that the DGLAP equations correct the Naive Parton model by including pQCD effects. There are also hadronization models that are used to understand the formation of Jets in deep inelastic scattering. How are these two 'extremes' connected?
536	T	QCD		How does DGLAP evolution work, and how does it describe parton showering?
537	T	QCD		Simulation: What's the major uncertainty from the generator?
538	T	QCD		What are the origins of disagreements in predictions using the HERWIG and PYTHIA MCs and between MRST and CTEQ PDFs, as seen for example in direct photon cross sections
539	T	QCD		How important will NLO corrections play in understanding the experimental backgrounds?
540	T	QCD		As I understand the physics of small-x will be available at the future generations of hadron colliders. The theory describing small x values (like BFKL) predicts rapid growth of cross sections at small x values. What are the perspectives to discover this behaviour? Could it be also a strong background for discovery of other new physics?
541	T	QCD		What are the limitations in the current Lattice QCD calculations?
542	T	QCD		What can be learned from LHC for 'low-energy' QCD, i.e. the non-pertubative regime?
543	T	QCD		How can we use hadron collisions further our understanding of QCD? In deep-inelastic scattering, an electron is a point particle with no internal structure but hadron-hadron interactions are more complicated due to its structure. What sort of direct methods are available?
544	T	QCD		How feasible would it be to conduct experiments to determine which PDFs best describe reality, and/or to produce information allowing the PDFs to be better tuned to describe reality.
545	T	QCD		Is confinement in QCD an established fact?
546	T	QCD		Since I'm currently using several MC generators (such as Isajet, MadGraph/MadEvent and Pythia) I'd like to know more about the systematic theoretical errors envolved in these simulations and at what extent NLO calculations will be necessary to extract BSM events from data.
547	T	QCD		What is the best approach to including higher order effects in calulations of distribustions of observibles, more specifically w.r.t. the use of k-factors, versus some matrix element approach, versus Parton Shower+ME matching via some mechanism (be it MLM or CKKW), in the light of Tevatron data, what should we be doing for our LHC simulations?
548	T	QCD		What are the other ways to calculate cross-sections, apart from the perturbation method? Is the non-perturbative QCD understood mathematcally?
549	T	QCD		Can PDFs be further constarined using jet inclusive measurements at the LHC?
550	T	QCD		How are parton distribution functions measured and calculated, and how accurate are they? There seem to be recommendations to use different ones when generating certain LHC physics events, why is this so?
551	T	QCD		I am interested in knowing what kind of schemes are considered in PDFs, specifically if alternatives to MS-bar have been considered and what the consequences are.
552	T	QCD		How do the various event generators and detector simulators compare - what are their relative strengths and weaknesses?
553	T	QCD		How does a parton level event generator works. Different event generator techniques and assumptions. How is the underlying event simulation. How is the extra (initial and final state) radiation generated (the physical process) and how are they modeled and added to the parton level generator to have the whole simulation of a hadronic collision.
554	T	QCD		What are the most promising future analyses in hadron collider experiments which will improve the pdf uncertaintis?
555	T	QCD		Once we have data at the LHC, how will we tune the ISR and FSR?

556	T	QCD, SM	BSM	How might increased accuracy of the bottom and/or charm quark mass (the proposed topic of my thesis) assist calculations outside of lattice QCD? More generally, in which beyond the SM theories may lattice gauge theory be able to assist?
557	T	QCD, SM		How well is initial/final state radiation modeled in monte carlo event generators, and how do we find the systematic errors?
558	T	QCD, SM		To which extend can the effects of e.g. ISR, FSR, PDFs or beam remnants on the top mass be addressed in the framework of the LHC and/or a linear collider?
559	T	SD	BSM	Will the LHC be able to probe topological and strong dynamics effects more accurately than the Tevatron? If so what do we expect to see?
560	T	SD	BSM	WW scattering analysis let us believe TeV physics will be strong dynamics. So many theorists consider the electroweak dynamics in TeV scale are QCD-like theory including high energy resonances, and some try to study this TeV strong dynamics by Extra Dimension. However, I think strong dynamics do not mean there are bound states such as techni-pion, techni-rho,just like low enery QCD. If nature favors other kinds of strong dynamics that can not form bound states, how can we identify this new kinds of strong dynamics?
561	T	SD		Can we detect effects from technicolor in LHC?
562	T	SD		Despite contain problems as flavor-changing neutral currents, the theories technicolors present as strong candidates for a possible solution to the gauge hierarchy problem. What are the characteristics that put that level?
563	T	SD		Similarly, I want to find a number of people who have done searches for events with extremely low branching ratios. I'm looking for Technicolor signals, and the more I read, the smaller and smaller areas of parameter space are left available for Technicolor. Though most of this parameter space should technically be available at the LHC, I'm concerned that my backgrounds may be so large as to make even any thorough analysis beyond the scope of my time in graduate school. (I suppose for this, I'd like to talk to the theorists at Fermilab that worked on Technicolor back when it was in vogue.)
564	T	SM	BSM	If physics is found "Beyond the Standard Model", what will be the limits of use of the Standard Model ? In other words, will the standard model be forgotten or will it be conserved as a first approach of the physical phenomena ?
565	T	SM	BSM	Gauge invariance is an incredibly elegant theoretical framework, but so far I haven't found a convincing enough argument that proves that all field theories must be gauge invariant. Is gauge invariance truly a fundamental symmetry of nature?
566	T	SM	BSM	Which are the Beyond-Standard Models that in the end are compatible with electroweak precision tests?
567	T	SM	BSM	I would appreciate a theoretical description for how the neutrino masses are included in both the Standard Model and also in different beyond Standard Model physics scenarios.
568	T	SM	Cosmology	Could the LHC rule out electroweak baryogenesis?
569	T	SM	General	Is there any chance to have that quarks and leptons are themselves composite? Do the new theories include this scenario? Consequences.
570	T	SM	General	What are the known possibilities of discovering or learning something about the origin of neutrino masses at the LHC?
571	T	SM	Heavy Ion	Whether we can consider the baryon conservation as a unity of the interaction structural parts, and if so what the observed regularity says about the nature of nuclear matter
572	T	SM	HF	How does the application of Wilson operator expansion allow us to relate physics at high energies to the local operators that represent the low energy processes.
573	T	SM	Higgs	How the electroweak experimental constraints so far will compare to the ones expected with ones when the LHC is turned on? What would be the implication for Higgs physics? What is a realistic time frame for obtaining such results?
574	T	SM	Higgs, BSM	Issues & prospect(Higgs+BSM) in the first few years of LHC run (~10 inverse-femtobarn data) and how we (the collider phenomenologists) can best contribute.
575	T	SM	QCD	Which essential physics processes effect ttbar production at hadron colliders and how are they realized in Monte Carlo generators?
576	T	SM		Why we have only three generations of quarks and leptons. Why we can't have more than three. How do we know there are only three. Also why each generation have precisely two leptons and quarks like we have top and bottom quark or electron and electron neutrino.
577	T	SM		If neutrinos have mass there must be right handed neutrinos. How can we account for right handed neutrinos within the Standard Model?
578	T	SM		How do we justify the use of perturbative techniques (i.e. in quantum field theory) for our current understanding of the universe? Does that mean that we cannot understand our universe analytically?

579	T	SM		In the last few years, what are the pieces of knowledge that the experiments at the Tevatron have added to our understanding of the Standard Model?
580	T	SM		To which degree can the theoretical precision on e.g. the total ttbar cross-section, the top-mass or the W mass, follow the experimental precision that will be obtained at LHC?
581	T	SM		In recent times a lot of effort have gone into improving theoretical SM calculations (NLO->NNLO). These improvements can shift the predicted value significantly away(towards) measurements. How much faith can we put on these calculations? How
582	T	SM		What are the prospects for studying W+ W- scattering at the LHC, especially in the context of strong dynamics at the electroweak scale?
583	T	SM		Now that neutrino oscillations have been confirmed, this implies the existence of right handed neutrinos. What would these particles interact with? They are charge and colour neutral, so don't couple to photons or gluons, and are right handed so won't interact with W or Z bosons. And if they don't interact with any of the force carriers, how could their existence be confirmed?
584	T	SM		We know the precision test of standard model can give us some clues of TeV new physics through the non-decoupling effects of heavy new particles. One specific example is that if there are new heavy fermions the gauge boson loops (via S, T and U parameters) and Zbb one loop vertices will be enhanced through the non-decoupling loop effects. My question is whether we can obtain some clues of new heavy gauge bosons through the non-decoupling loop effects?
585	T	SM		There are many beyond-standard models. This is due to the fact that we know that there should be new physics at the TeV scale. What is the status quo in precision-measurements in search of this physics?
586	T	SM		What are the limitation/problems with the Standard Model ?
587	T	SM		How can neutrino masses be explained in the context of SM?
588	T	SM		Is there any possible explanation for the various experimental (HEP) data other than the interpretation within the framework of gauge theories?
589	T	SM		What is the best way to understand fragmentation of newly formed particles?
590	T	SM		Very precise cross section measurements (beyond LO, NLO or NNLO) could show deviations from Standard Model due to new particles affecting the Loops and so on. Are these kind of studies proper for the LHC?
591	T	SM		How will reducing the error on the mass of the top to approximately 1 GeV help with searches for the Higgs and our understanding of the Standard Model?
592	T	SM		I did not never understand what the quantum vaccum is and if the physical vaccum makes semse. I think that we are going back to the Democritus' problem.
593	T	SM		How can I believe the value of the top mass when the error bars seem to me to indicate tremendous uncertainty?
594	T	SM		Suppose, 10-15 years from now, the LHC experiments have discovered a Standard Model Higgs (and no other new particles), and W scattering has been measured to be unitary. Is that the end of experimental high-energy particle physics, at least as we know it?
595	T	SM		To what accuracy can we test the Standard Model at the LHC?
596	T	SM		What is the difference between chirality and left/right handedness? (I've heard them used interchangably, but I know that they have specific meanings which I am not sure of)
597	T	SM		What insights will we be able to learn about neutrino physics at the LHC?
598	T	SM		Due to the dominance of gluon fusion, LHC top quark production is expected to be very high. What new techniques have developed to study top quark events?
599	T	SM, BSM	HF	What are the golden channels to be found at LHC and what types of backgrounds, what techniques will be available to understand those backgrounds and guarantee that there is a real SUSY signal?
600	T	SM, BSM		Which are the main arguments that suggest that something new (i.e. higgs bosson, SUSY, ...) will be find at the LHC energy scale?
601	T	SM, BSM		What new physics can be observed by investigating asymmetries in top events? In general, what particles beyond the standard model are predicted whose evidence would be found in top physics analysis?
602	T	SM, BSM		I will be interested in a detailed review that focuses on the latest Tevatron physics results.
603	T	SM, BSM		What are the most interesting prospective measurements that can be made at the Tevatron but not at the LHC and why?
604	T	SM, BSM		If we find the Higgs boson at the LHC but we do not see any proof for the existence of supersymmetric particles, the Standard Model will encounter problems. How do we save the SM without the existence of SUSY at the TeV scale?

605	T	SM, BSM		Do you expect anymore surprises from neutrinos and how would neutrinos fit in the LHC physics? In Beyond Standard Model like Extra Dimensions, how do you explain its tiny mass, compared to the rest ?
606	T	SM, BSM		Is it possible to think in Physics as the Standard Model one without the existence of a scalar particle as the Higgs?, the same question follow for SUSY models...
607	T	SM, BSM		What are the advantages of an EFT description of a QFT?
608	T	SM, BSM		At the tevatron there are many searches for asymetries (top-anti-top assymetry, production angle assymetries, etc.), since the LHC is a p-p colider, instead of a p-\bar{p} colider, will these types of searches still be possible? And if so, to what degree?
609	T	SM, BSM		I would like to have a list with a brief description of the available computer programs used for studying standard model and beyond the standard model processes at hadron colliders at different orders in perturbation theory.
610	T	SM, QCD		What is the relation between W asymmetry and Parton Density Functions?
611	T	SM, QCD		What are most important reasons to think that there may be a J/Psi enhancement rather than its suppression during the formation of QGP formation at LHC?
612	T	SM, QCD		When it comes to known physics processes, like pp --> Z or pp --> ttbar, what are the main uncertainties in predicting their cross sections at the LHC? I would like it if Giulia Zanderighi could at least touch on this.
613	T	SM, SUSY		Is the minimal Standard Model expected to prevail if there isn't low energy supersymmetry? What happen if there is?
614	T	SUSY	BSM	Assuming CMS/ATLAS found reliable new physics signatures (after some years of running) only explainable with a certain supersymmetric model that is already excluded by for instance heavy-flavor physics or cosmology what would the theorists do?
615	T	SUSY	BSM	What would happen to supersymmetrical models, and further string theories if in the next few years a SM Higgs will be excluded?
616	T	SUSY	BSM	How has mSUGRA been ruled out experimentally?
617	T	SUSY	BSM	What conclusions could one draw concerning string theory from the observation of SUSY particles?
618	T	SUSY	Cosmology	If a lightest super-symmetric partner is responsible for dark matter, are there astrophysical measurements that can be done to constrain its mass? Are we guaranteed to see this lightest supersymmetric partner at the LHC? What constraints does Fermilab data put on this?
619	T	SUSY	Cosmology	According to WMAP and other astronomical observations the universe is only 3% normal matter. With the other 97% being comprised of dark matter and dark energy. Surely during the processess of star formation stars with at least partial dark matter content should have formed, with consequences for the spectral output of the stars. Do the current constrains on SUSY model parameter spaces include limits imposed by observations of these dark stars? and if not how could one implement this?
620	T	SUSY	Cosmology	Is there any candidate to explain the dark matter in Susy?
621	T	SUSY	DA	How supersymmetry is studied in LHC?
622	T	SUSY	DA	What is the best experimental strategy to navigate in the sea of parameters and benchmarks for susy models??
623	T	SUSY	General	It is said in the literature that "models in which the squark or gluino mass is below 1 TeV, SUSY should be discoverable with a data sample equivalent to a small fraction of a year running" (Michael E. Peskin, arXiv:0801.1928). However in view the difficulties imposed by a hadron collider in the detection of SUSY, which issues require a collider e+e- for a deeper analysis?
624	T	SUSY		what part of the SUSY models is expected to be verified, or discarded?
625	T	SUSY		What are the possibilities to rule out or confirm some specific scenarios of supersymmetry using the data from LHC?
626	T	SUSY		What will be main signals for MSSM at the LHC ?
627	T	SUSY		Why do we need more than one Higgs doublet in the MSSM?
628	T	SUSY		What are the challenges in narrowing down to a specific model of supersymmetry at low integrated luminosity? At large integrated luminosity?
629	T	SUSY		How good are the chances of a SUSY discovery at LHC?
630	T	SUSY		Can the LHC definativly explore super symmetry, i. e. can it answer without doubt, the existence of supersymetric partners?
631	T	SUSY		which is the origin of R parity conservation in SUSY?
632	T	SUSY		Our present Monte Carlo based SUSY searches at LHC are in most cases heavily model dependent. How do the most popular models relate to the more general SUSY theory? Can we experimentally distinguish between the models, how? How can the searches be more model independent?

633	T	SUSY		How much variety is expected from the different SUSY models in the way they may be detected. i have studied some regions of mSugra and know a little about aMSB (non pointing photons) but SUSY is large area. Are we ready to discover the maximum range of different Supersymmetric models.
634	T	SUSY		How exactly does supersymmetry theory work (notwithstanding the usual quick answers)?
635	T	SUSY		Theory: For the early LHC data, will that sufficient to have those LM1-LM8 points to make any solid conclusion? Are there any other senarios?
636	T	SUSY		What will be the hallmark collider signatures for supersymmetric events at the LHC and Tevatron?
637	T	SUSY		What types of events at the LHC would help to determine the mass hierarchy of superpartners? What specific signatures seem most promising for the detection of supersymmetric particles?
638	T	SUSY		What are the consequences of the SUSY models on the charged heavy leptons production through gluon-gluon fusion mechanism?
639	T	SUSY		How can we discover SUSY and how can we measure sparticle properties such as mass and spin?
640	T	SUSY		Which experimental studies could exclude the biggest parts of SuSy Parameter space?
641	T	SUSY		How could we best detect a possible SUSY signal if the signature does not include large missing energy (due to R parity conservation) as assumed by many models and incorporated as a requirement in most searches?
642	T	SUSY		Super-symmetry predicts that for every known particle there exists a super-partner particle of the same mass. Tevatron experiments should have detected at least the lightest super-partners. My questions is why does Tevatron fail to see even the lightest super-partners?
643	T	SUSY		Why should supersymmetric particles be more massive than their counterparts?
644	T	SUSY		What experimental constrains are applicable to MSSM?
645	T	SUSY		For supersymmetry: Is the mass hierarchy of the SM particles' supersymmetric partners related to the SM particles' mass hierarchy? For example should an s-top be more massive than an s-charm etc., or maybe the reverse?
646	T	SUSY		On what timescale can we expect to explore and analyze SUSY parameter space?
647	T	SUSY		What is the current status of limits on Supersymmetry? I would be interested in an overview of the limits and how they are obtained. What are the prospects for the next few years for improvements from non-collider experiments?
648	T	SUSY		Why fine tuning is needed in SUSY theory?
649	T	SUSY		How is SUSY broken?
650	T	SUSY		If supersymmetry is not R-parity conserved how would be the experimental signature?
651	T	SUSY		What exactly is tan(beta) a measure of in the Supersymmetric model and what does it correspond to in the real world?
652	T	SUSY		SUSY is one of the most favored explanations for the hierarchy problem. But the beauty of the model gets disturbed by the required symmetry breaking. Since SUSY is hard to break spontaneously, is there any elegant and convincing way of explaining this symmetry breaking?
653	T	SUSY		What parts of the SUSY models is expected to be discarded or verified?
654	T	SUSY		How well can we measure the R-parity violating signals with the Tevatron or LHC?
655	T	SUSY		A lot of work is going on in relation to searches for the Higgs at the LHC, yet I don't often hear much about the SUSY searches going on and the importance they play. What are some of the best candidates for SUSY searches at the LHC and the Tevatron?
656	T	SUSY		What are the signatures of new physics like supersymmetric particles and how are they likely to appear at the LHC or Tevatron?
657	T	SUSY		In SUSY we know that the main motivation of low-energy supersymmetry is to produce a plausible and realistic theory of electroweak breaking. An attractive realization of low-energy supersymmetry is gauge mediation. However it can not generate the proper values for the higgsino mass and the Higgs mass mixing. Is there a natural solution to this problem?
658	T, E	BSM	All subdet	What are the potential new physics processes that can be discover at LHC ? Again I would like to have them sorted by their requirements in the number of sub-detector and calibrations needs.
659	T, E	BSM	DA	Besides the potential observation of beyond-SM particles and the Higgs boson, to what extent will the LHC experiments be able to characterize the properties of the discovered particles (their charge, spin, couplings, and the complex phases in their couplings)?
660	T, E	BSM	DA	What are the generic signals of new physics?

661	T, E	BSM	DA	First I would like to have a short overview of physics beyond the Standard Model, and then I expect to understand what are the possibilities of finding evidence of new physics, as for example supersymmetry, in the LHC, on what it depends, and maybe have an example on how would a search analysis be.
662	T, E	BSM	DA	How do model-independent searches for new physics compare to searches for specific new physics? In terms of sensitivity? In terms of time / manpower required? In terms of utility to theorists in the construction / examination of models?
663	T, E	BSM	DA	How will the LHC data analysis process systematically deal with the parameter space of beyond the SM theories?
664	T, E	BSM	DA	How model dependent should a search for new physics at the LHC be? For example, what are some of the compromises involved when trying to optimize a search that looks for an excess in the tail of a mass distribution over the SM background?
665	T, E	BSM	DA	What capabilities are there to measure or deduce the spin of intermediate state particles, particularly in the case of decay chains which could involve one or more non-SM particles?
666	T, E	General		What is the LHC able to find and what not?
667	T, E	General		An overused statement says: Today's signal is tomorrow's background. How is LHC preparing itself for the day after tomorrow?
668	T, E	Higgs	DA	Many studies emerging from CDF suggest that the discovery of the Higgs boson is possible at currently accessible energy scales. How are studies emerging from Fermi lab effect the Higgs searches at the LHC?
669	T, E	Higgs	DA	What are the major technical challenges facing the Higgs search?
670	T, E	Higgs	DA	What are the primary backgrounds for a Higgs search at the LHC, and what methods are available to increase the signal to background ratio?
671	T, E	QCD	All subdet	While I have analyzed Monte Carlo datasets, the development of them is a black box to me. I would like to know more about Monte Carlo generators and detector simulation. Conceptually, how is it done? How are generation and simulation stitched together? How uncertain is the process; how much can Monte Carlo be trusted? As a user of Monte Carlo data, what generator details should I be aware of? Which generators are better for certain types of physics?
672	T, E	QCD	Calorimetry	How well do we know the jet cross section at LHC?
673	T, E	QCD	Calorimetry	What is the state of the art in simulating the hadronization process that leads to the formation of a jet? What are the perspective in validating and improving our simulation models?
674	T, E	QCD	Calorimetry	Why is the kT effect often discussed in the context of direct photons apparently not present in di-jet events?
675	T, E	QCD	DA	Proton-Proton interactions are completely different than the electron-positron collisions I am used to seeing produced by the PEP-II accelerator at SLAC. My question is: what are the different modes of interaction at the point of collision in a hadron machine? Further, are the physics signatures, both Standard Model and new physics, specific to the mode of interaction?
676	T, E	QCD	DA, Calorimetry	Are those Monte Carlo event generators that people already have now good enough? Does the accuracy they have in performing calculations on the background signals of hadron-hadron collisions satisfy the needs to extract new physics suggested by those existing models beyond the standard model physics?
677	T, E	QCD	General	Presently I am involved in the luminosity measurement at ATLAS and thereby to some extent the forward physics program. In that connection I would find it interesting to hear more about the forward physics program at the other experiments, along with the theoretical foundation.
678	T, E	QCD, Calo	BSM	What are some possible and plausible explanations in terms of Standard Model processes alone, that could cause the excess of data at low deltaR between the two lowest pT jets in the 3-jet final state observed in the CDF data, and what can be done to check these hypotheses? What are some possible new physics scenarios that would cause this effect?
679	T, E	QCD, DA		What monte carlo generators should be used for various physics channels, how do they compare, and what are their strengths and weaknesses.
680	T, E	SM	DA	In the area of Standard Model diboson physics, how will the LHC build on and improve the current cross sections measurements and anomalous coupling limits obtained at the Tevatron?
681	T, E	SM	General	What can we learn from W+jets measurements and what method best used to measure them?
682	T, E	SUSY	DA	Supersymmetry search at Hadron collider and experimental issues.