

10th HGSFP Winter School
Obergurgl 2017

Final Report

Organization Team

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1 Report Winter School 2017

This document concludes the 10th HGSFP Winter School, which took place for the tenth time at the University Center in Obergurgl, Austria from January 27th 2017 to January 31st 2017. In total 49 students - as we had one cancellations at short notice due to illness, we could not fill all 50 places - attended the lectures and participated in the poster sessions and social activities at the center and in the Obergurgl ski area.

Bus transfer from and to Heidelberg

TODO: Heiko

The venue

The staff at the University Center was very friendly, helpfull and supported us during the complete time. Room changes on short notice and changes in the timeslot for the coffe breaks could be done without any issues. Dinner and breakfast were delicious and special food request like vegan/vegesterin and gluten free could be taken into account.

The rooms were clean and towels were provided.

Scientific program

The scientific program consisted of three main parts:

- The scientific talks, on topics representing all the HGSFP branches and with the aim of introducing the research conducted at the different institutes in an accessible way to non-experts in the area.
- The two poster sessions, during which all participants presented their research. For the first time, this year the sessions started with a *elevator pitch* session, in which every student had one minute to introduce their poster.
- The special invitation talk, which by tradition has a wider scientific scope than the subject specific talks.

The lecture schedule (see Appendix A), easily available in the provided book of abstracts, encouraged all participants to attend lectures on topics different from their research subjects. The lecturers stayed at the University Center for either the entire school or part of it, thus giving lots of opportunities to discuss their talks and projects with them in a relaxed environment.

During the two poster sessions the participants presented their research to each other. Despite the tough schedule the discussions during these evenings were very intense and fruitful. With the lectures as a common basis the posters often served as a source for in-depth discussions of various theoretical and experimental phenomena.

Every student got the chance to present her/his poster in an one-minute elevator pitch. To practice and improve these presentations the school has provided a special session in which some positive examples were given and discussed.

The invitation lecture this year has focussed on the modelling of collective human behavior and discussed a way to use tools that are commonly used in physics also in difference branches of science.

Social event

The social event took place on Friday evening, the first evening of the winterschool. Following the success of the last years, we went to play curling at the ice-skating rink in Obergurgl. Ten teams of five people were selected randomly such that the students from different branches could get to know each other. After many enthusiastic games, kindly supervised by Arnold Kuen and his colleague, one team was celebrated as the evening's winner.

The social event was again a very successful event as became clear from the many positive reactions of the participants.

Acknowledgement

We want to thank the Heidelberg Graduate School of Fundamental Physics (HGSFP) for the financial support that made the 2017 Winter School possible.

2 Schedule of the HGSFP Winterschool 2016

Time	Friday 27th	Saturday 28th	Sunday 29th	Monday 30th	Tuesday 31th
7:30	Breakfast	Breakfast	Breakfast	Breakfast	Breakfast
08:30 – 10:15	Two, three, many? How quarks make hadrons (N. Berger) Engineering static and dynamical gauge fields with ultracold matter (F. Jendrzejewski) Star Clusters and Star Cluster Systems (G. Parmentier)	Jets to the future: Boosted boson and top jets as a probe for new physics (C. F. Anders) Fundamental principles and their realisation in physical laws (B. M. Schäfer) Environmental Geophysics using Electromagnetic Methods (P. Yugeswar)	Folk theorems of Quantum Gravity (L. Witkowski) Fundamental physics with cold molecules (S. Hoekstra) Single-Molecule Fluorescence and Super-Resolution Imaging (K. Grußmayer)	Folk theorems of Quantum Gravity (L. Witkowski) Fundamental physics with cold molecules (S. Hoekstra) Single-Molecule Fluorescence and Super-Resolution Imaging (K. Grußmayer)	Folk theorems of Quantum Gravity (L. Witkowski) Fundamental physics with cold molecules (S. Hoekstra) Single-Molecule Fluorescence and Super-Resolution Imaging (K. Grußmayer)
10:30 – 15:30	Arrival	Break	Break	Break	Break
15:30 – 17:00	Practicing elevator talks (video)				
17:00 – 18:45	Two, three, many? How quarks make hadrons (N. Berger) Engineering static and dynamical gauge fields with ultracold matter (F. Jendrzejewski) Star Clusters and Star Cluster Systems (G. Parmentier)	Jets to the future: Boosted boson and top jets as a probe for new physics (C. F. Anders) Fundamental principles and their realisation in physical laws (B. M. Schäfer) Environmental Geophysics using Electromagnetic Methods (P. Yugeswar)	From riots to raves: Modeling collective human Behavior to avoid catastrophe (M. Dunford) Return		
19:00 – open end	Dinner at 18:00 Social Event	Dinner Elevator speeches Poster Session	Dinner Elevator speeches Poster Session	Dinner Dinner	Introduction to HGSFP

3 General Evaluation

Below we present the statistics from the evaluation sheets which were distributed in the bus on the way back to Heidelberg. The questions concern the school in general, the scientific talks and includes comments from the participants. The distribution of the answers among the HGSFP branches was as follows:

3.0.1 General

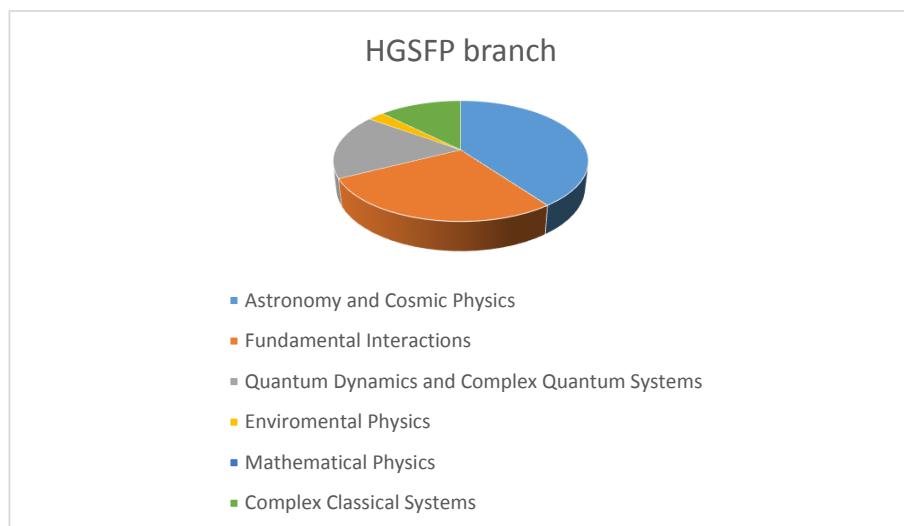


Figure 2: In which branch of the HGSFP are you?

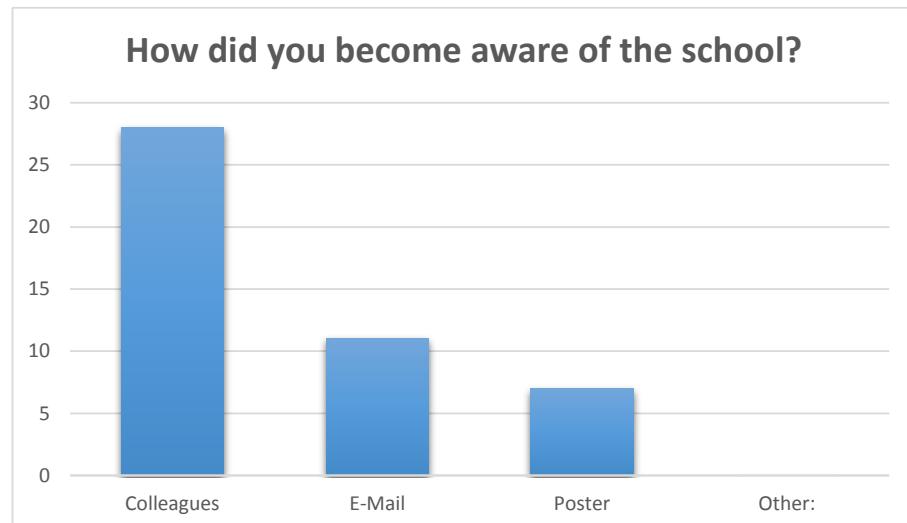


Figure 3: How did you become aware of the school? Multiple choices possible.

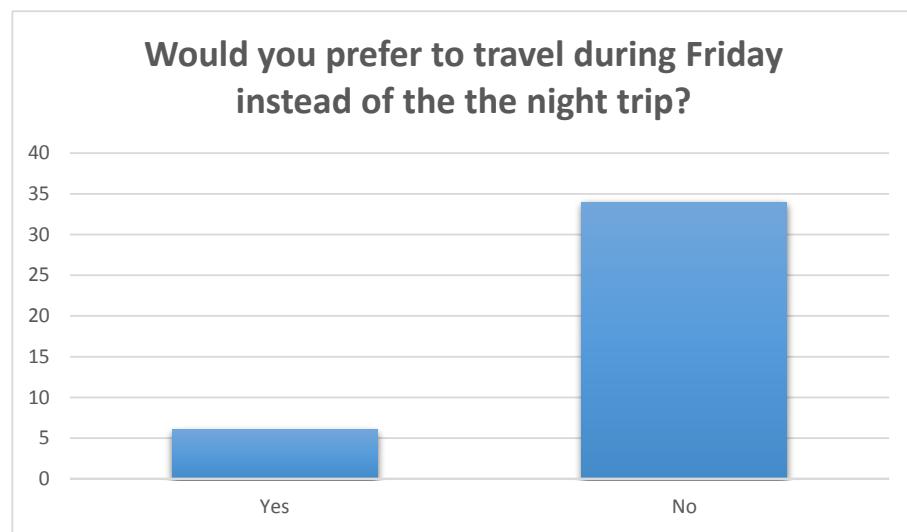


Figure 4: Would you have preferred to travel on Friday instead of the night trip and to arrive in Obergurgl on Friday evening?

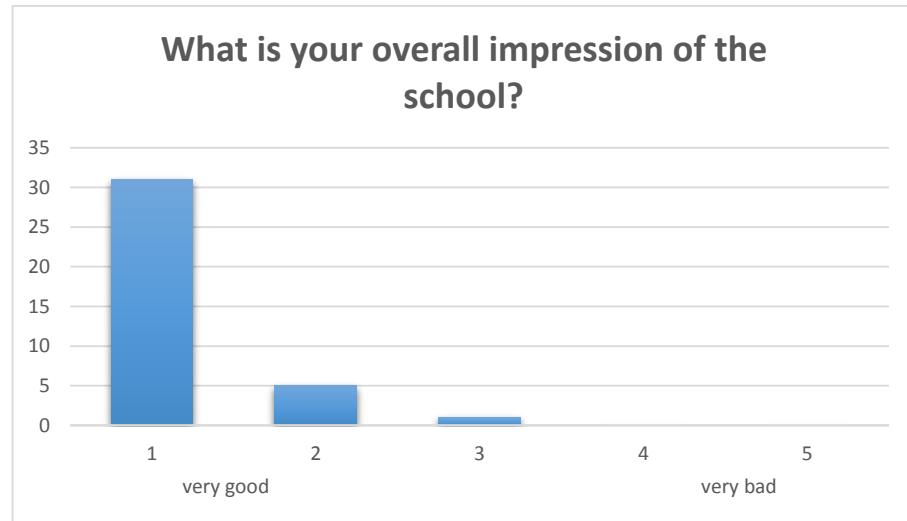
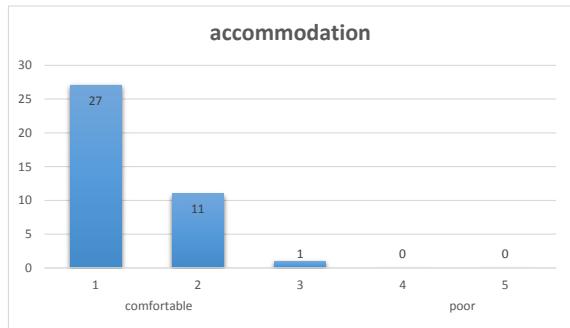
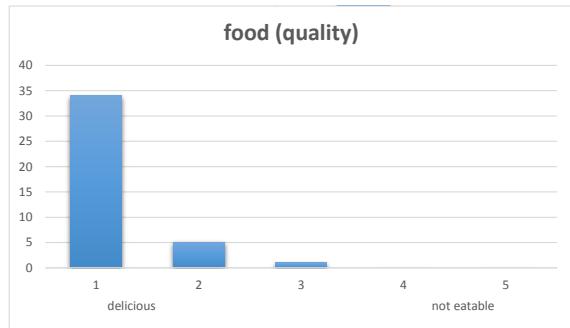


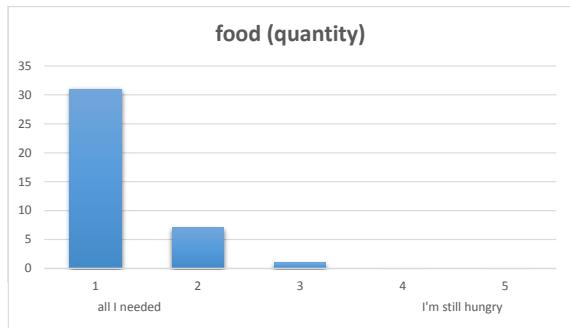
Figure 5: What is your overall impression of the Winter School 2017?



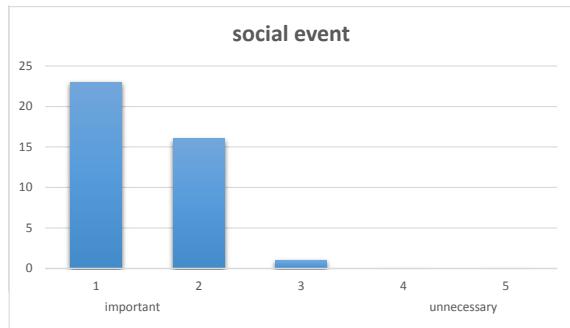
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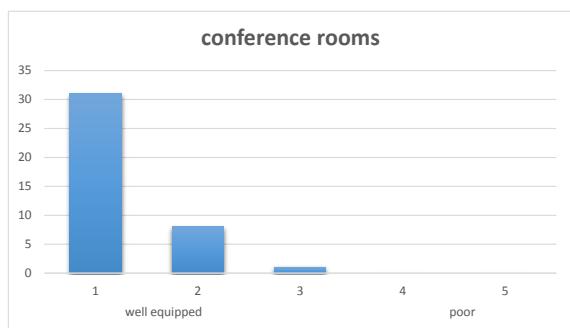
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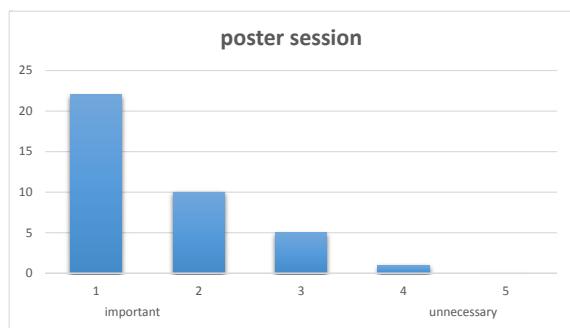
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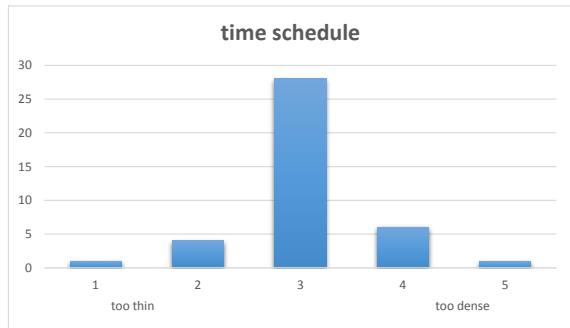


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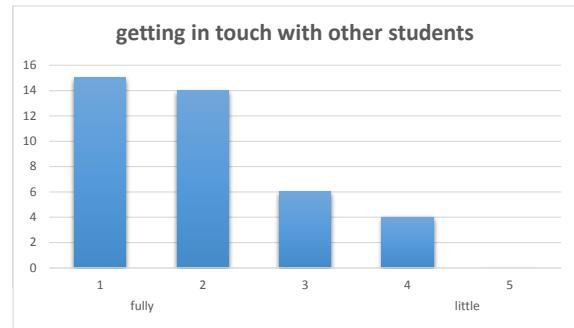


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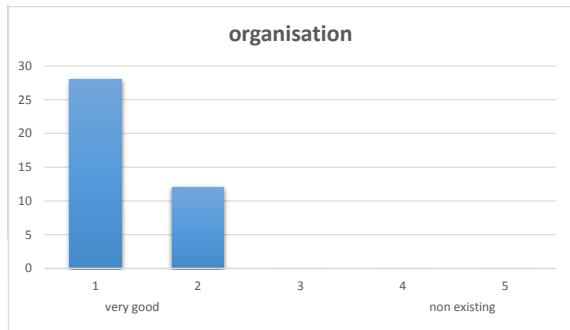
Figure 6: General evaluation of the winterschool (part 1)



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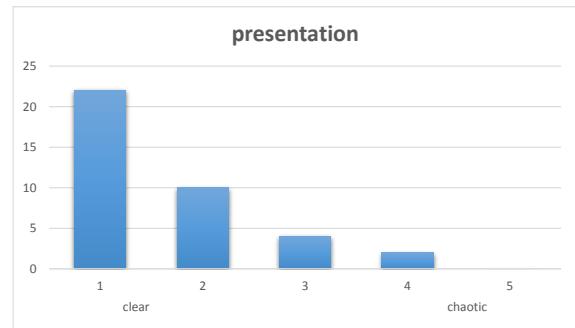
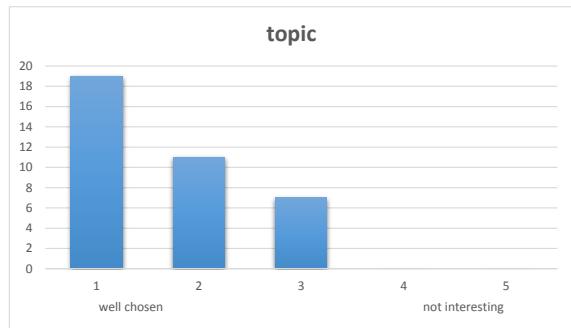


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Figure 7: General evaluation of the winterschool (part 2)

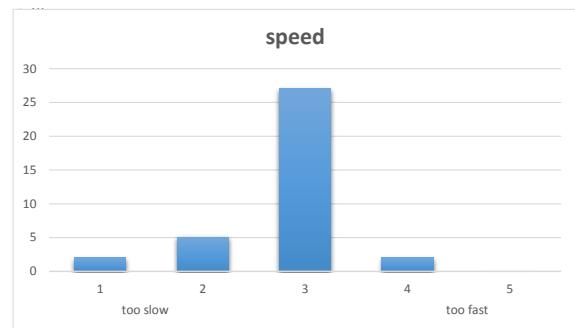
3.1 Lecture evaluations

3.1.1 Invitation Lecture: M. Dunford - "From riots to raves"



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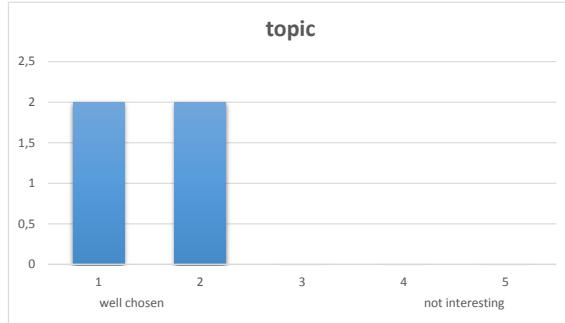


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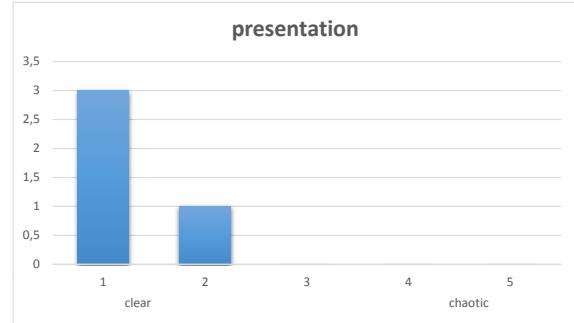
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Figure 8: Invitation Lecture: M. Dunford - "From riots to raves"

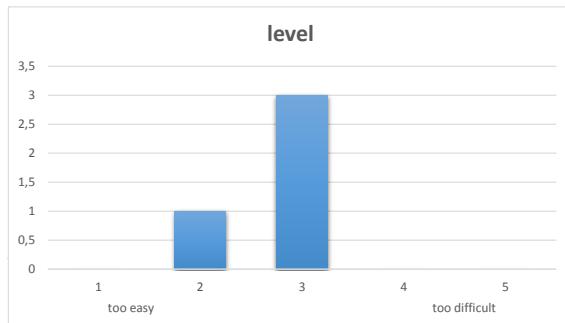
3.1.2 Lecture: C. F. Anders - "Jets to the future: Boosted boson and top jets as a probe for new physics"



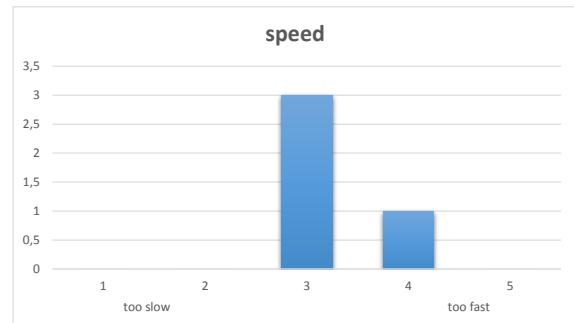
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Figure 9: Lecture: C. F. Anders - "Jets to the future: Boosted boson and top jets as a probe for new physics"

3.1.3 Lecture: N. Berger - "Two, three, many? How quarks make hadrons"

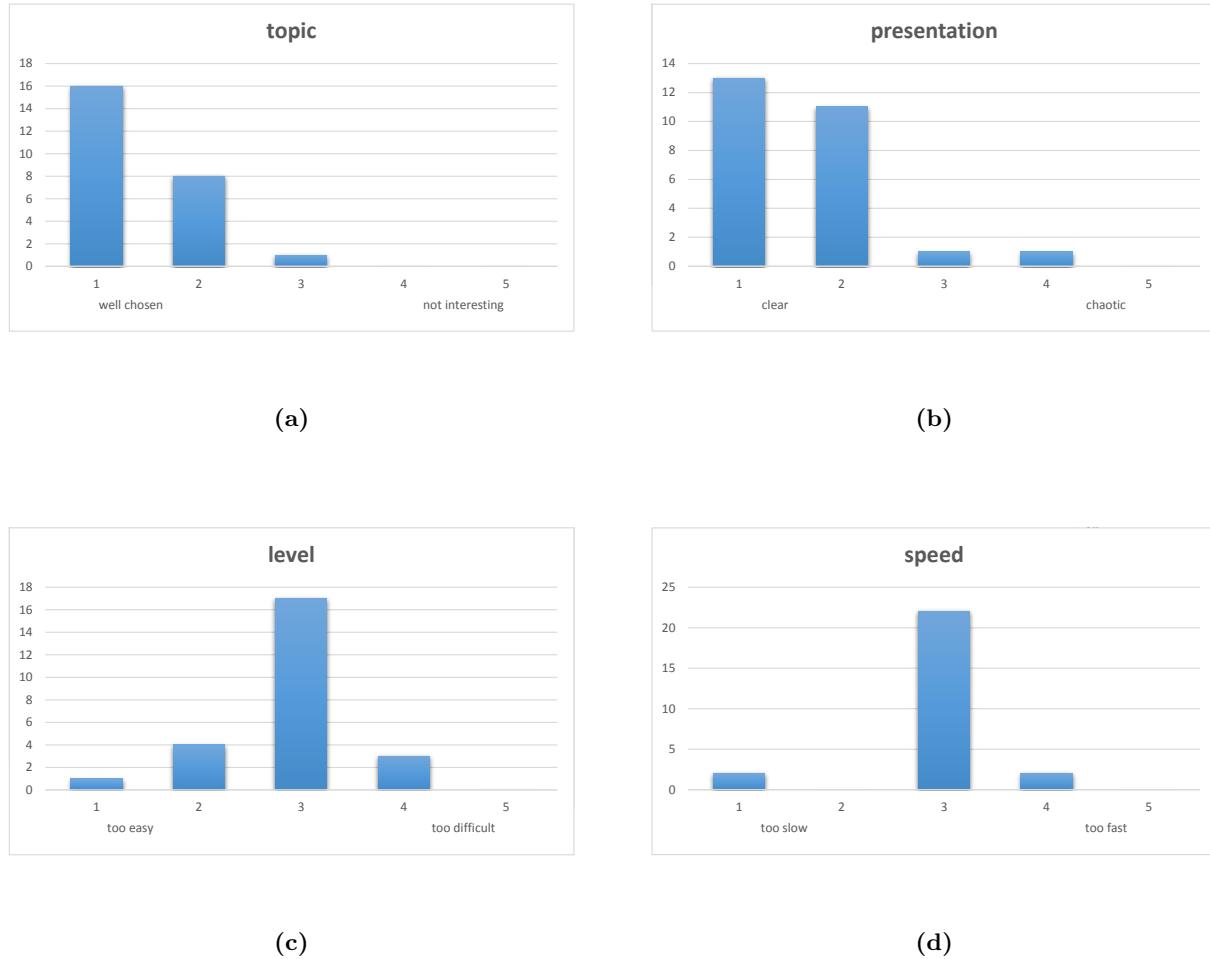
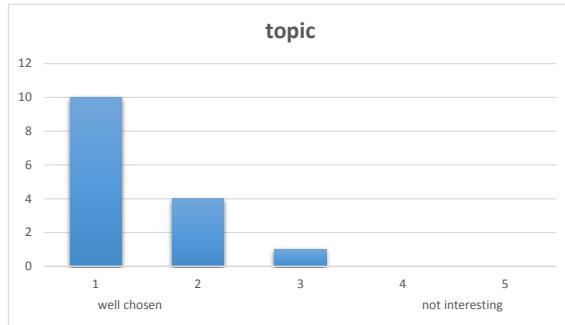
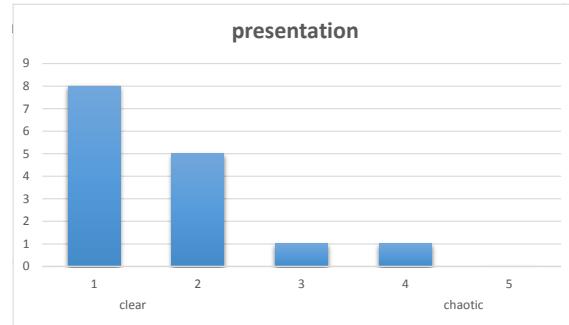


Figure 10: Lecture: N. Berger - "Two, three, many? How quarks make hadrons"

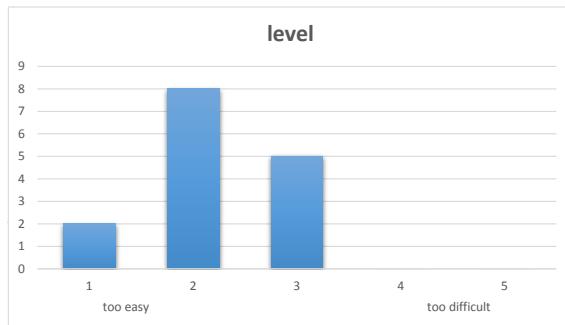
3.1.4 Lecture: K. Grußmayer - "Single-Molecule Fluorescence and Super-Resolution Imaging"



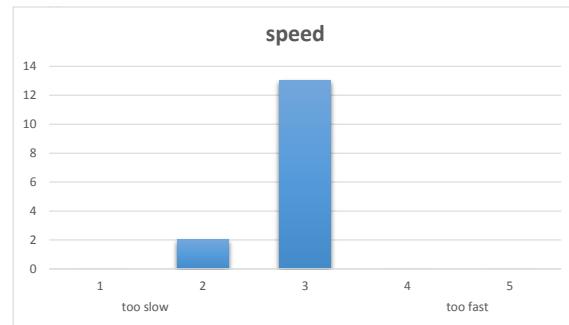
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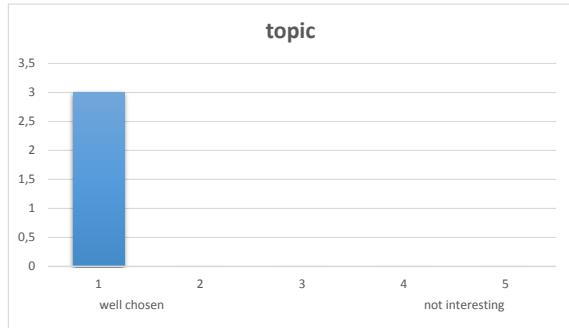
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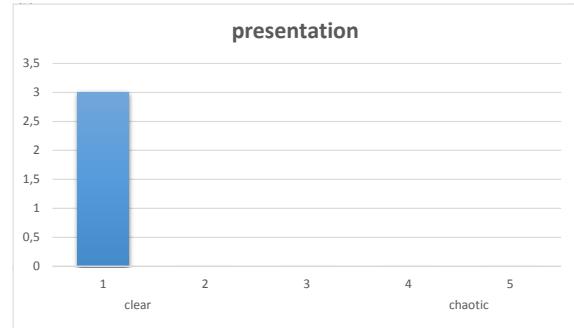
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Figure 11: Lecture: K. Grußmayer - "Single-Molecule Fluorescence and Super-Resolution Imaging"

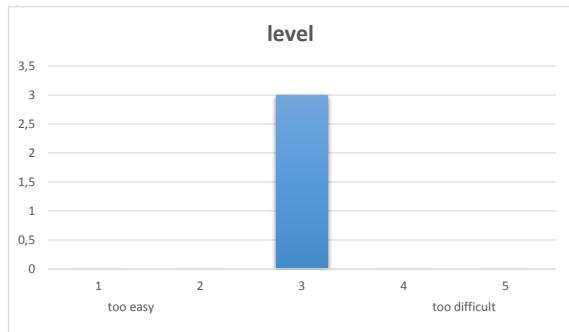
3.1.5 Lecture: S. Hoekstra - "Fundamental physics with cold molecules"



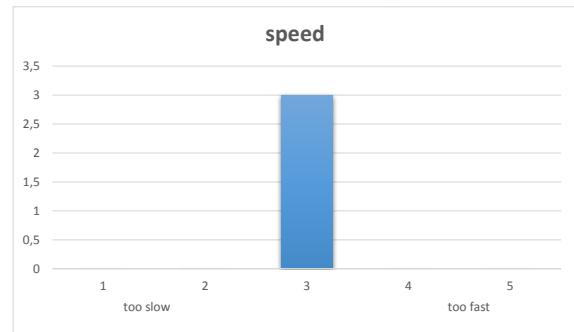
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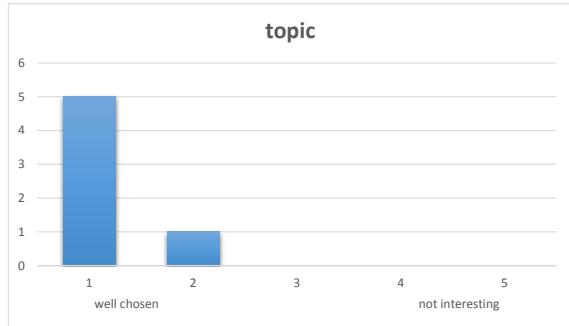
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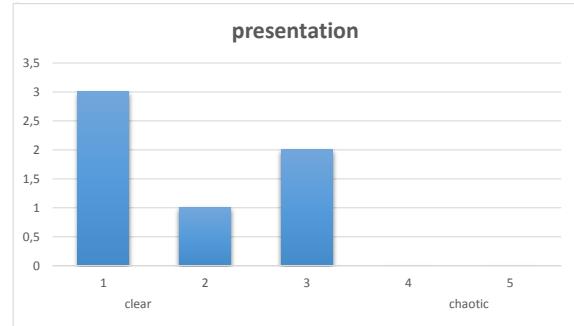
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Figure 12: Lecture: S. Hoekstra - "Fundamental physics with cold molecules"

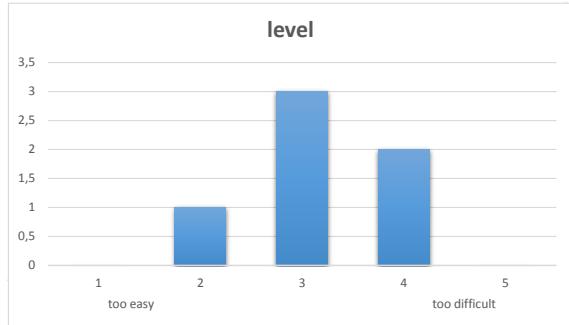
3.1.6 Lecture: F. Jendrzejewski - "Engineering static and dynamical gauge fields with ultracold matter"



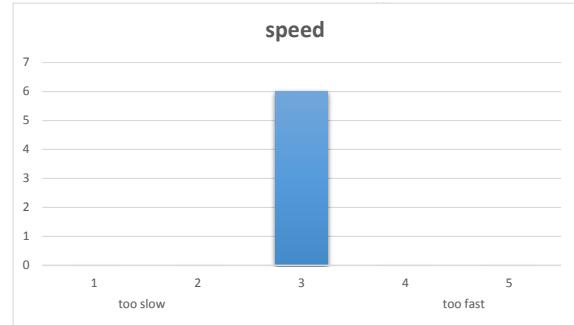
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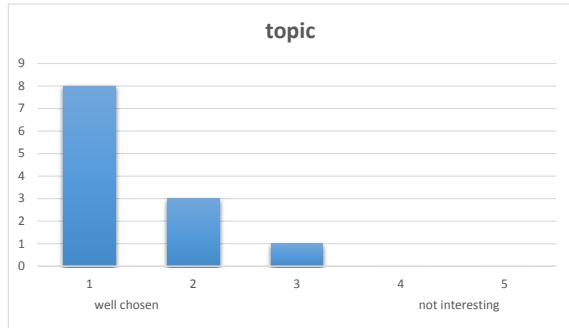
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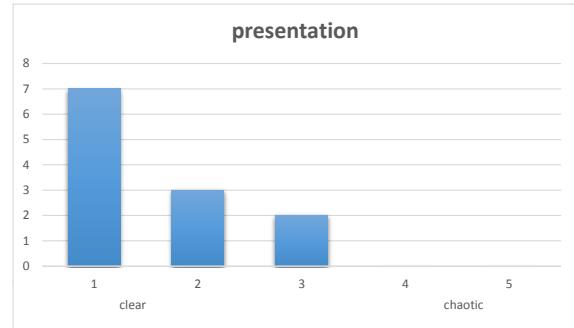
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Figure 13: Lecture: F. Jendrzejewski - "Engineering static and dynamical gauge fields with ultracold matter"

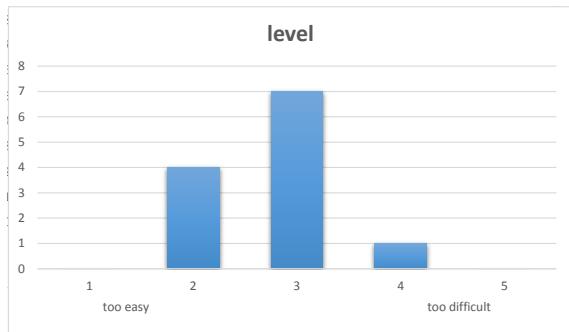
3.1.7 Lecture: G. Parmentier - "Star Clusters and Star Cluster Systems"



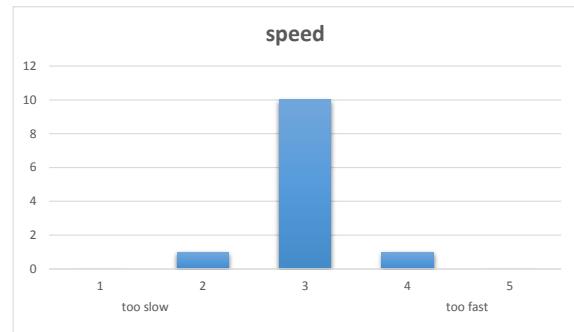
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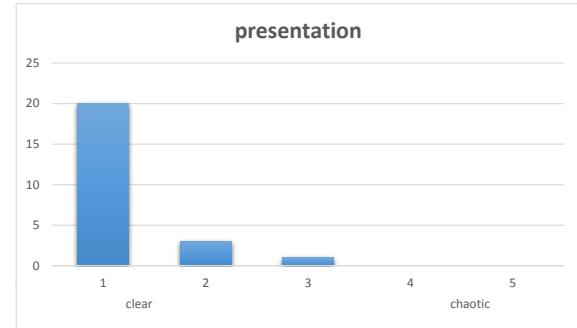
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Figure 14: Lecture: G. Parmentier - "Star Clusters and Star Cluster Systems"

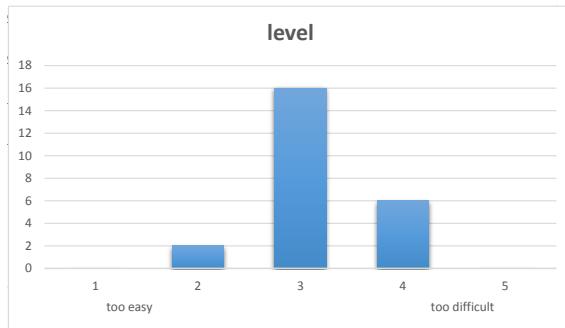
3.1.8 Lecture: B. M. Schäfer - "Fundamental principles and their realisation in physical laws"



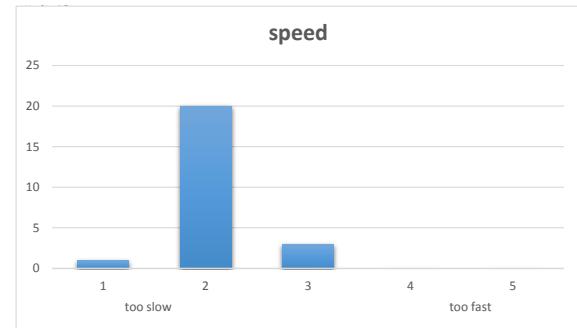
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Figure 15: Lecture: B. M. Schäfer - "Fundamental principles and their realisation in physical laws"

3.1.9 Lecture: L. Witkowski - "Folk Theorems of Quantum Gravity"

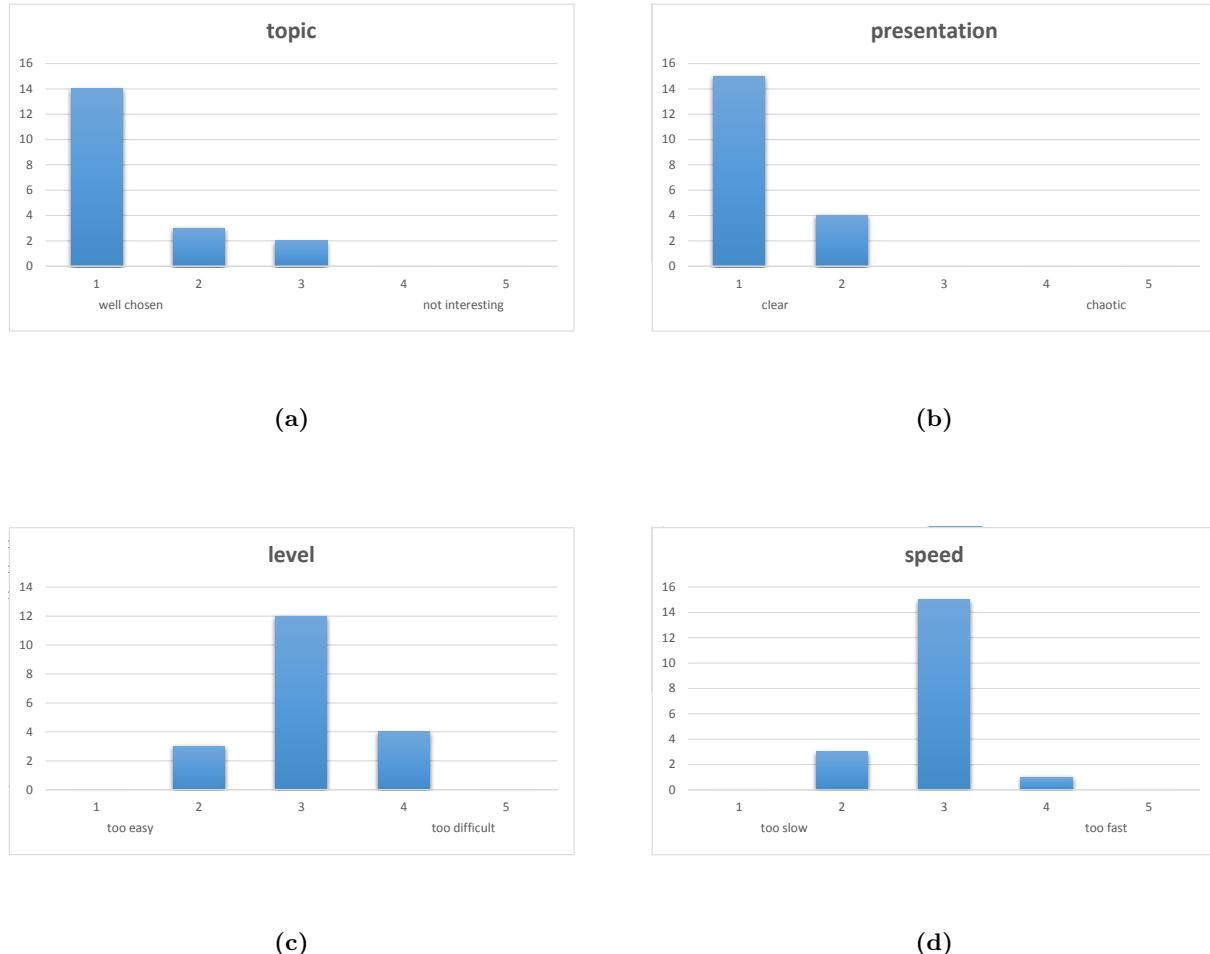
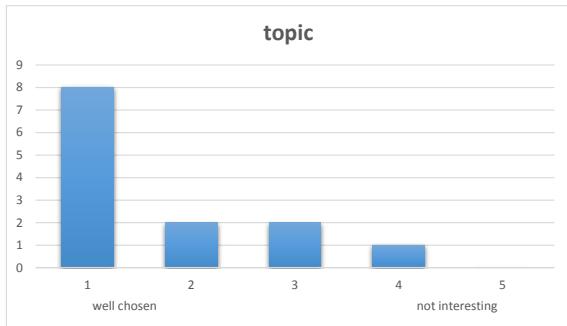
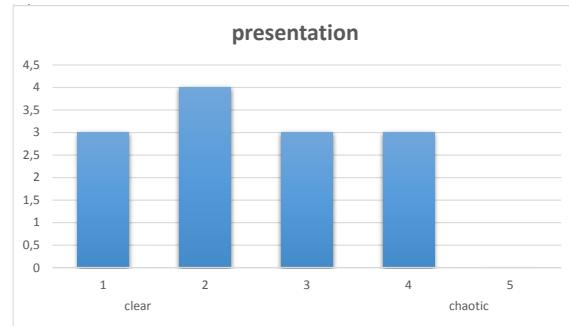


Figure 16: Lecture: L. Witkowski - "Folk Theorems of Quantum Gravity"

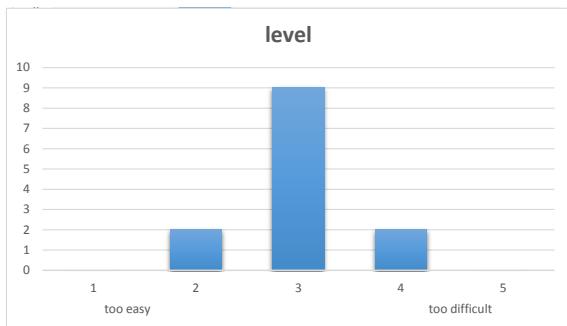
3.1.10 Lecture: P. Yogeshwar - "Environmental Geophysics using Electromagnetic Methods"



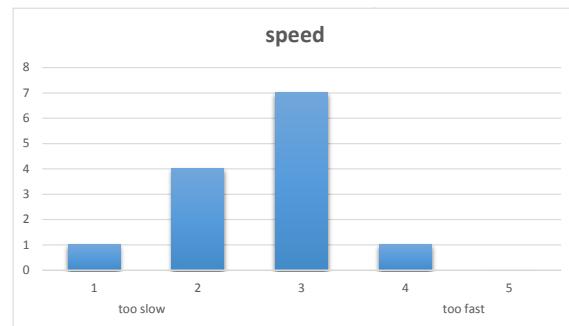
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Figure 17: Lecture: P. Yogeshwar - "Environmental Geophysics using Electromagnetic Methods"

3.2 Comments from participants: What did you miss?

- TODO:Heiko

3.3 Comments from participants: Important remarks not covered in survey

- TODO:Heiko

3.4 Comments from participants: Lecturer recommendations

- TODO:Heiko