



Impressions from Young Scientists

RECFA visit to Belgium

Martin Delcourt on behalf of 23 phd students

21 April 2017

Impressions from Young Scientists

Introduction - methodology



- A word about myself:
 - Teacher's assistant (UCL)
 - roughly 50% of my time is dedicated to teaching
 - 3rd year of phd out of 6
 - Working on the upgrade of the CMS tracker
- I am **not** representative of the phd community
- To best capture the views of the community, I circulated a poll among 77 phd students from UA, ULB/VUB, ULg and UCL.
 - I collected 23 answers (~30%)

Impressions from Young Scientists

Introduction - methodology



- To have interesting answers, I asked some difficult questions
→ The tone of some questions might seem quite heavy
- Anonymity was amongst my main concerns
 - Data randomised to prevent me from identifying answers
 - Comments written in the poll have been interpreted to avoid possible identification
- **My point of view is most certainly biased!**
 - I tried to minimise the conclusions drawn

Impressions from Young Scientists

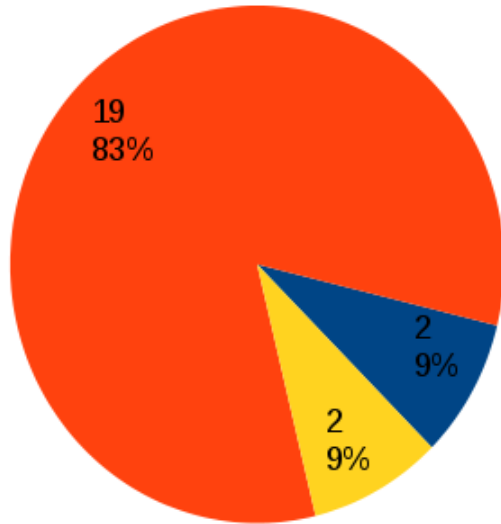
Introduction - Content

- The following questions were addressed:
 - What is a phd in high energy physics in Belgium?
 - What are the relations with the supervisors?
 - About the phd topic
 - Well-being at work
 - Future of research
 - About academia
 - Career plans of students

What is a phd in high energy physics in Belgium ?

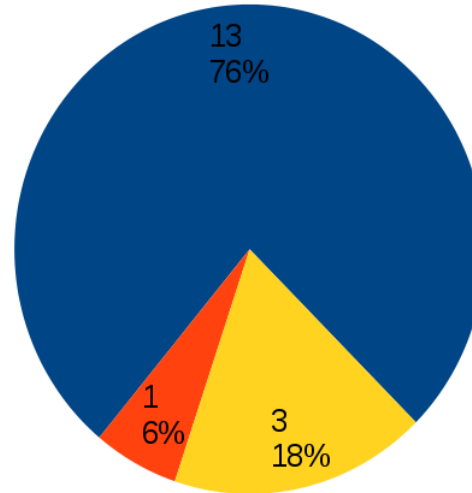
Topic and age

Field of studies



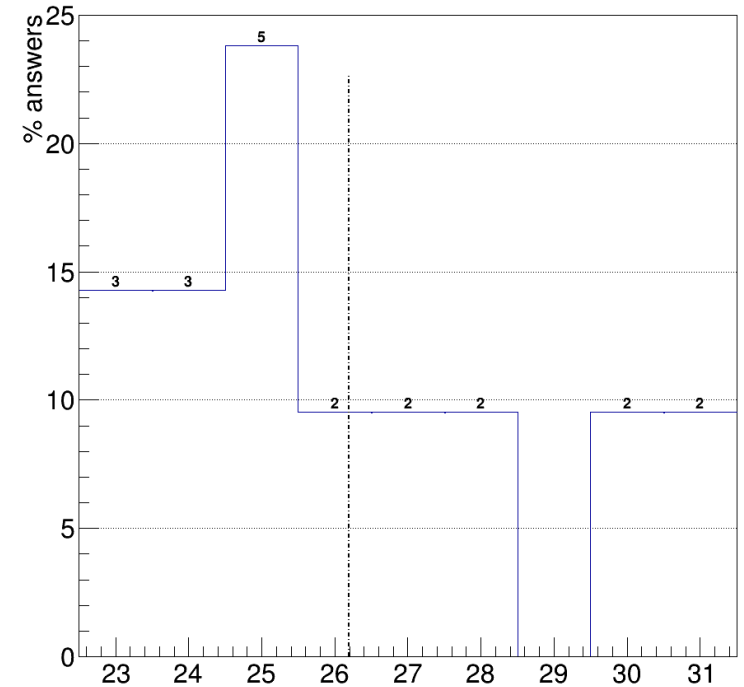
- Theoretical Physics
- Experimental Physics
- Phenomenology

Experiment



- CMS
- IceCube
- NA62

Age of respondents

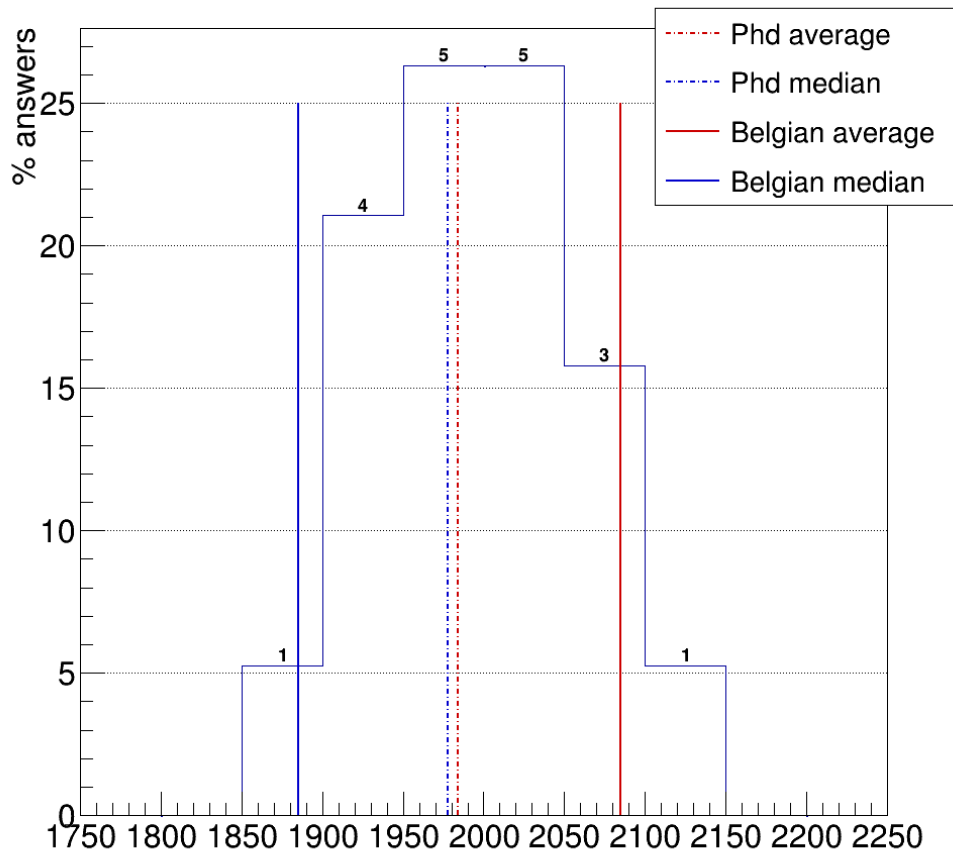


In backup : Nationality and country of graduation
University, gender and funding of respondents

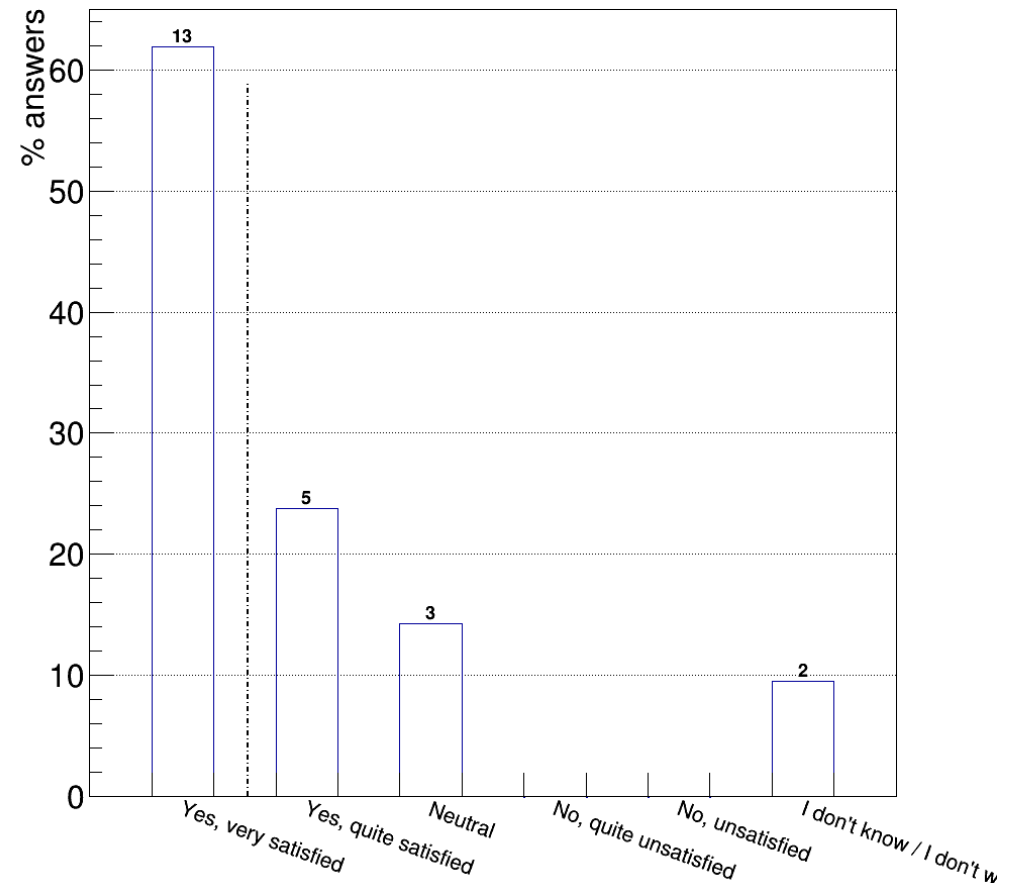
What is a phd in high energy physics in Belgium ?

Salary

Net monthly salary (*)



Are you satisfied with your salary? (**)



(*) Two comments on this plot :

- Belgian net salaries extrapolated, not including advantages
- Corrected probable typo in an answer (1798 → 1978 €/month)

(**) I received one comment for this question

For a PhD salary, it is average.
For a salary at my degree level to live a decent, happy life on, it is fairly poor.

What are the relations with the supervisor?

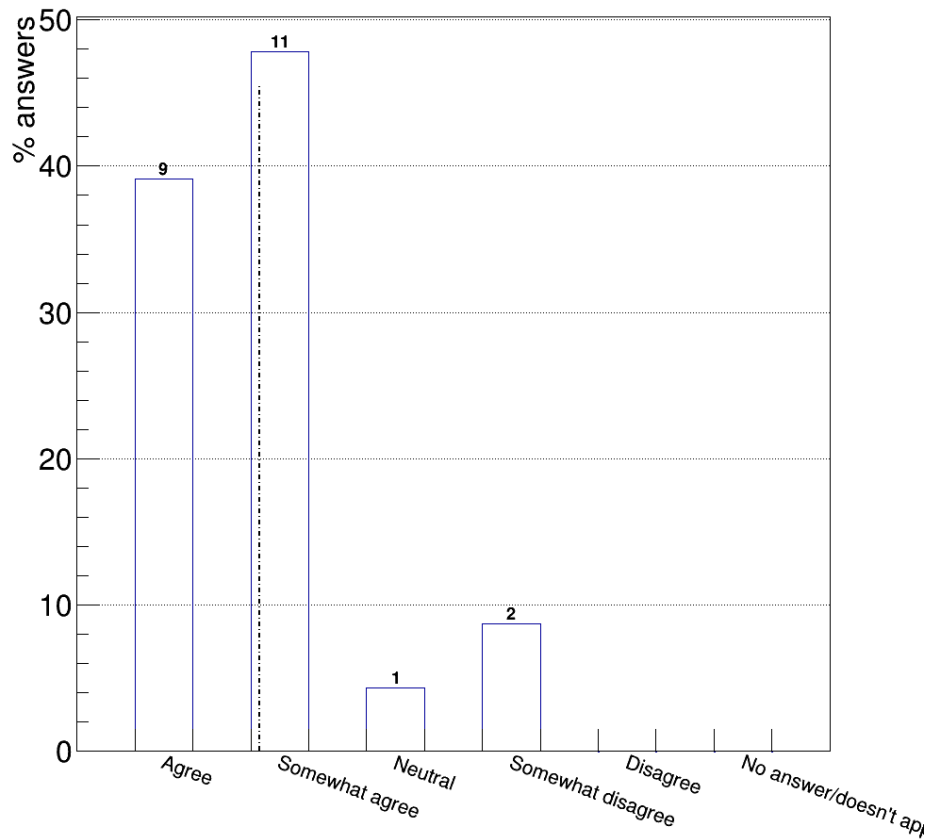
- Unfortunately no time to discuss this now
- Please check backup slides if you are interested...
- Summary:

People seem generally happy with their supervisors, but quite sometime wished he was more available.

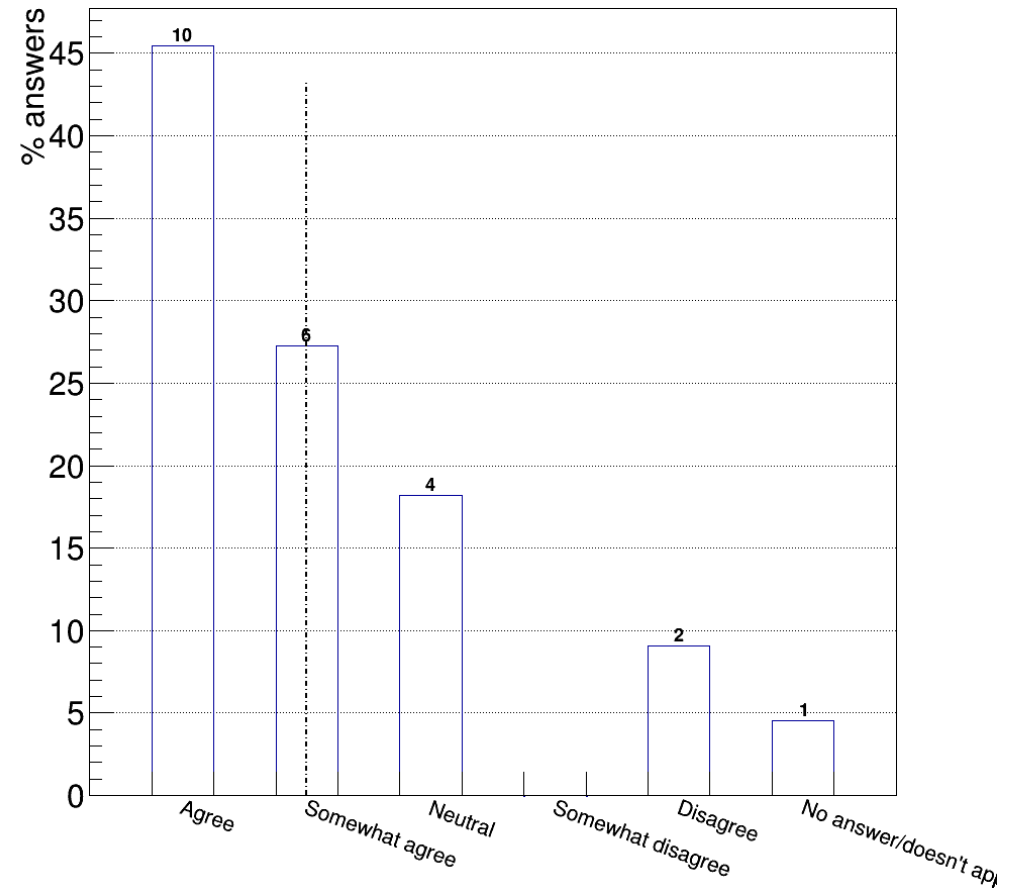
In backup : I often discuss work with my supervisor
My supervisor makes me feel valuable
I sometimes wish I had a more dedicated supervisor
I sometimes wish I had a more competent supervisor
My supervisor provides valuable input for my research
The input of other co-workers is more important than that of my supervisor

About the phd topic

I am happy with my current phd topic.



I feel that my thesis is important to my field.



Dashed line is the average.

“No answer” excluded from % and from average.

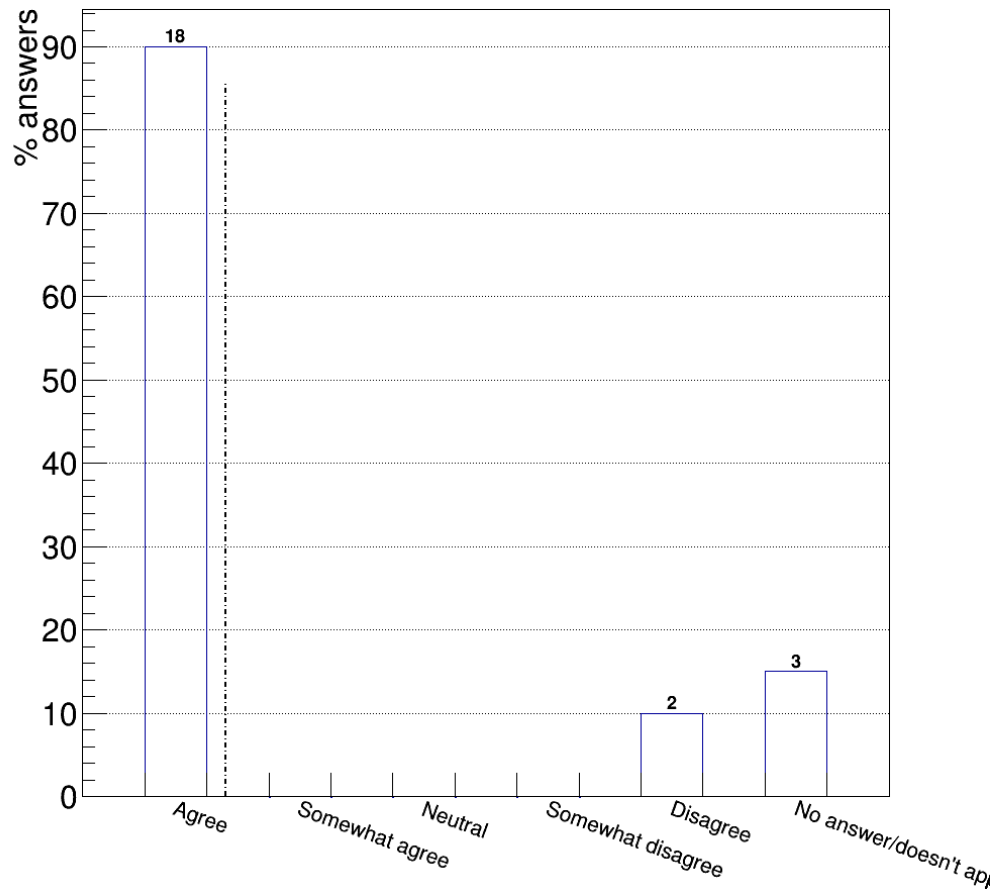
In backup : My phd topic was well defined from the start

I find my phd topic meaningful

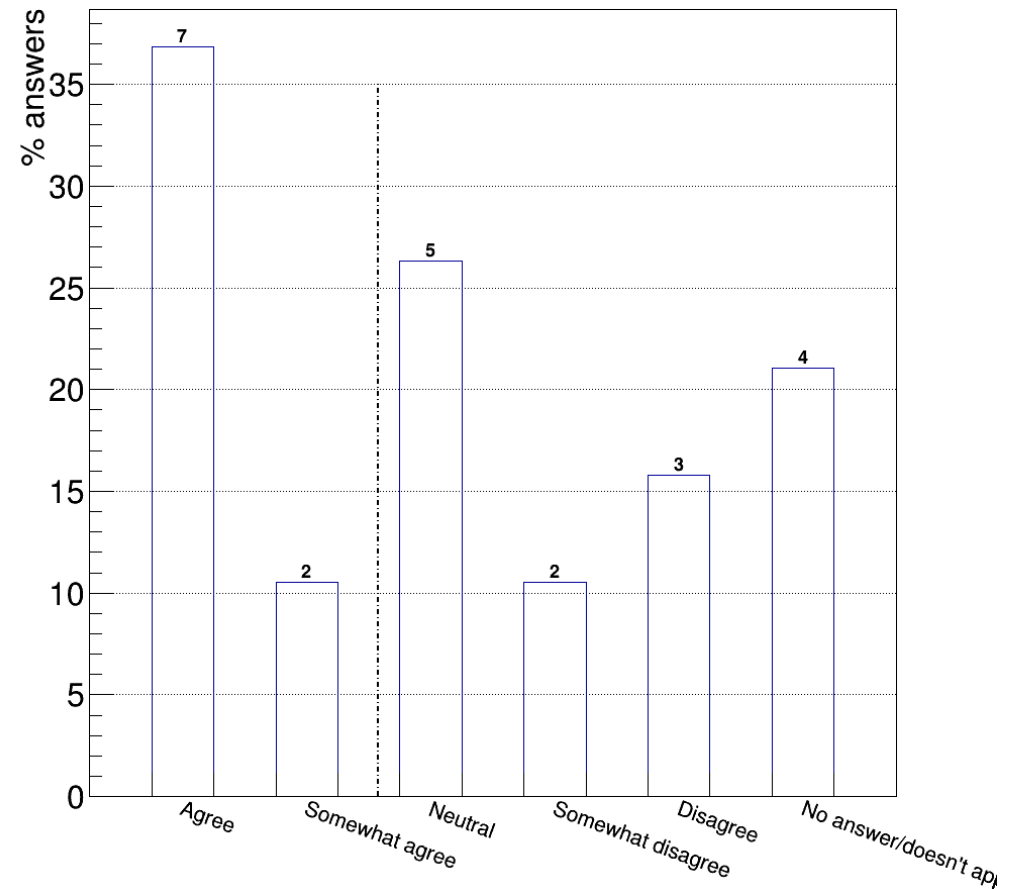
I feel that my thesis is important to the general public. 8

About the phd topic – extra duties

I have service tasks for my collaboration.



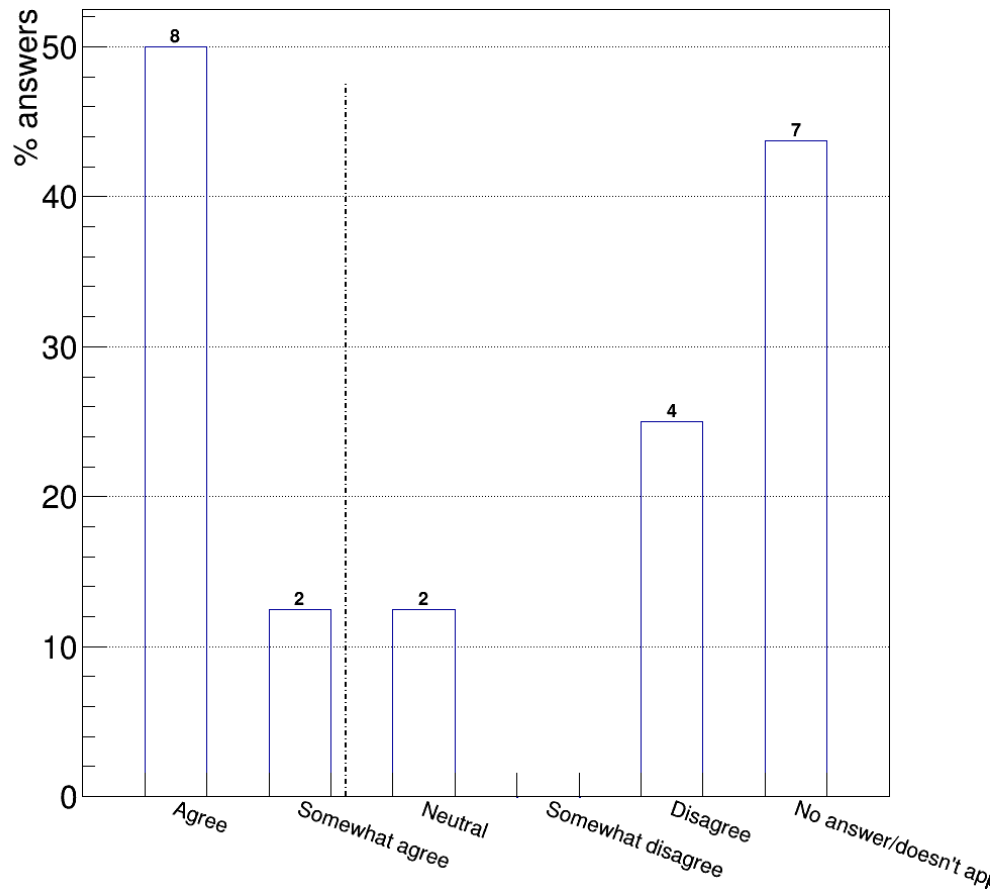
My service tasks are acceptably low.



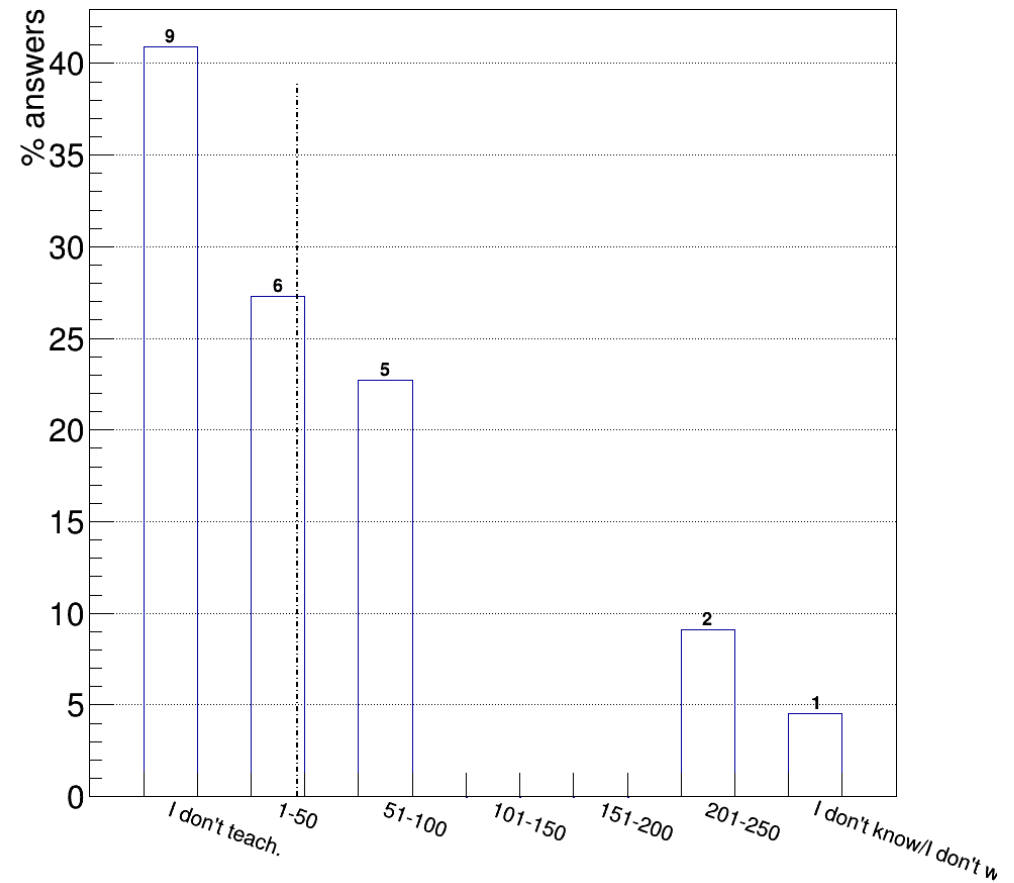
I'm bad at multitasking, so service tasks do keep me from research more than I'd like [...]

About the phd topic – extra duties

My teaching duties are acceptably low.



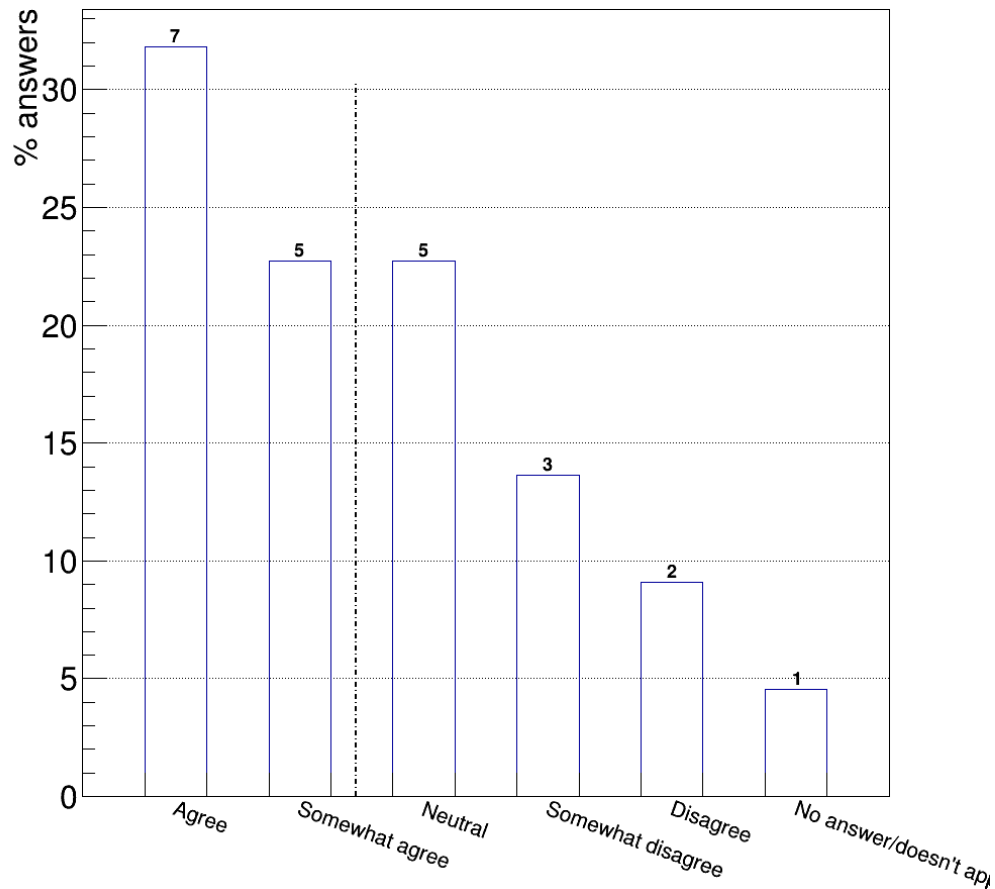
How many hours do you roughly teach every year ?



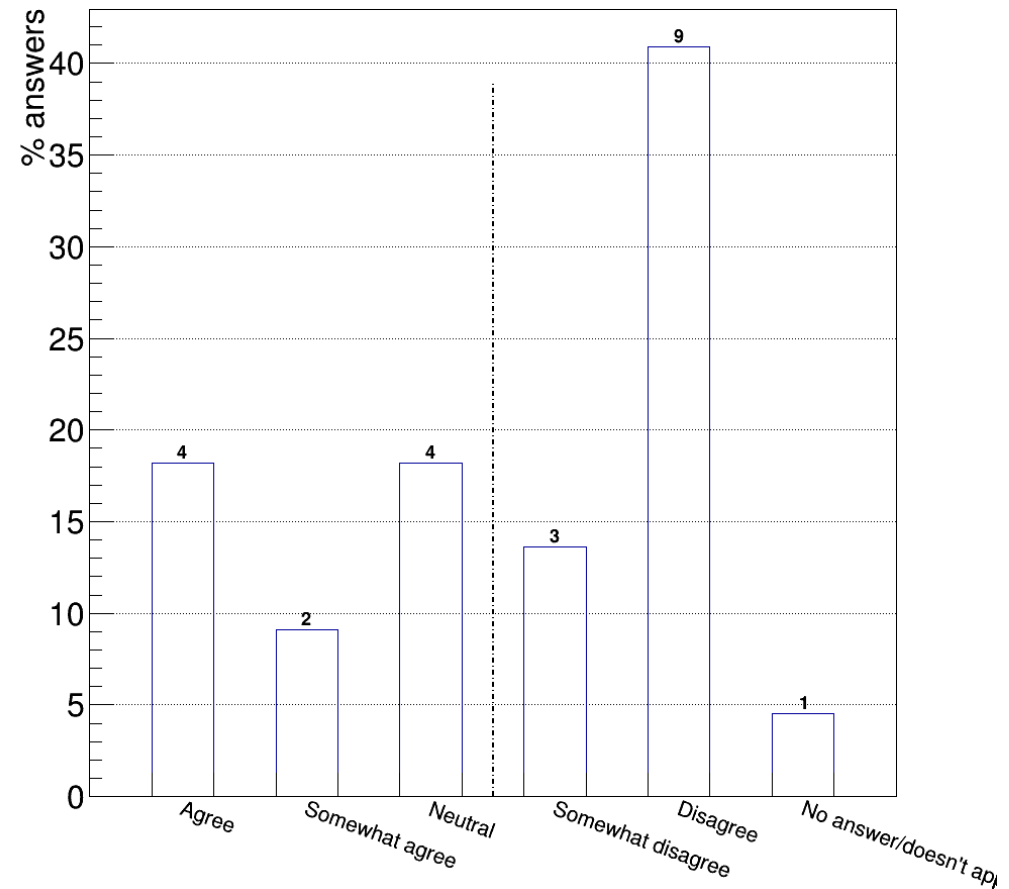
My teaching duties are high and I'm OK with it since it's part of my job (as teaching assistant)

Well-being at work

I often feel stressed.



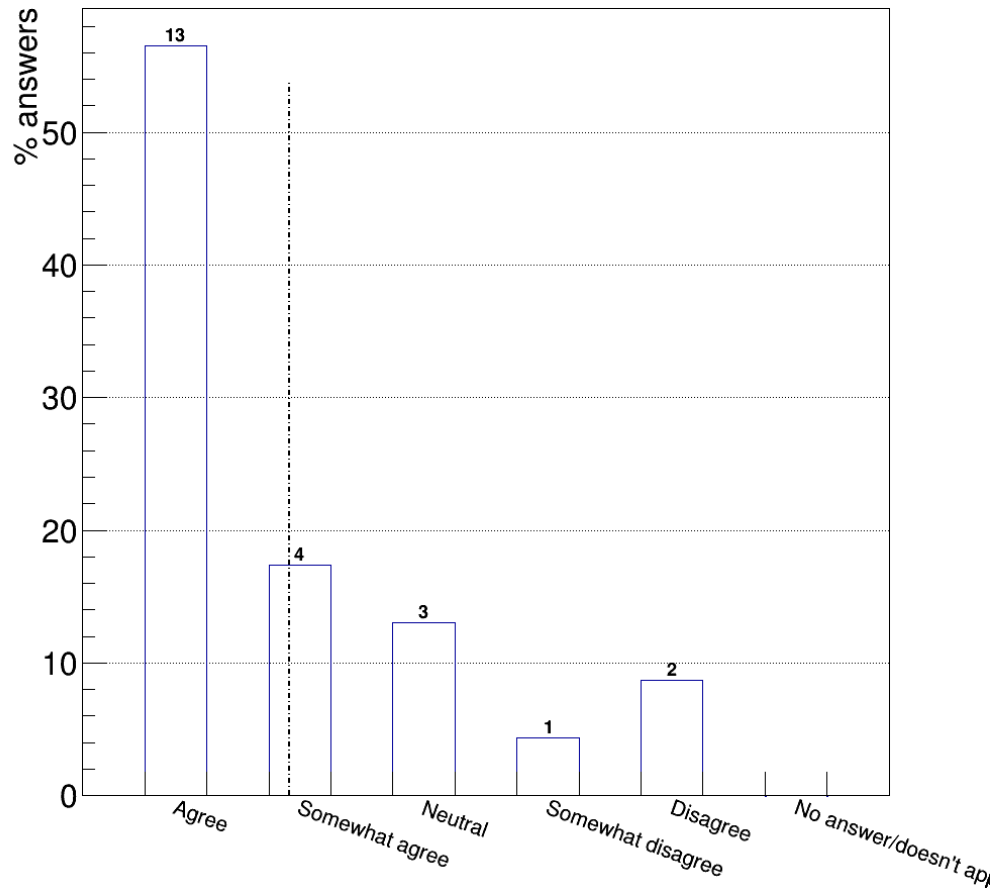
I work within the hours specified by my contract [...]



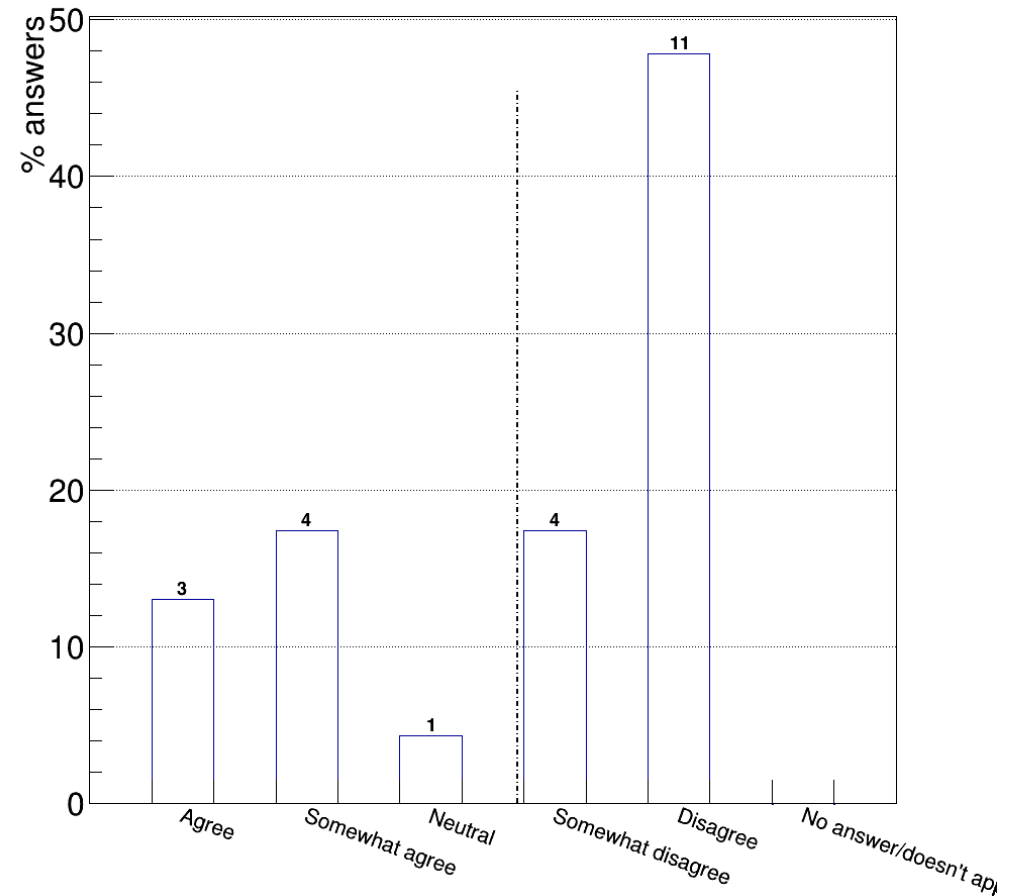
In backup : I suffer or have suffered from anxiety during my phd
I found difficulties sleeping because of my work
I feel that my university values me correctly

Well-being at work

I am confident on my ability to finish my thesis.



I already thought about quitting.

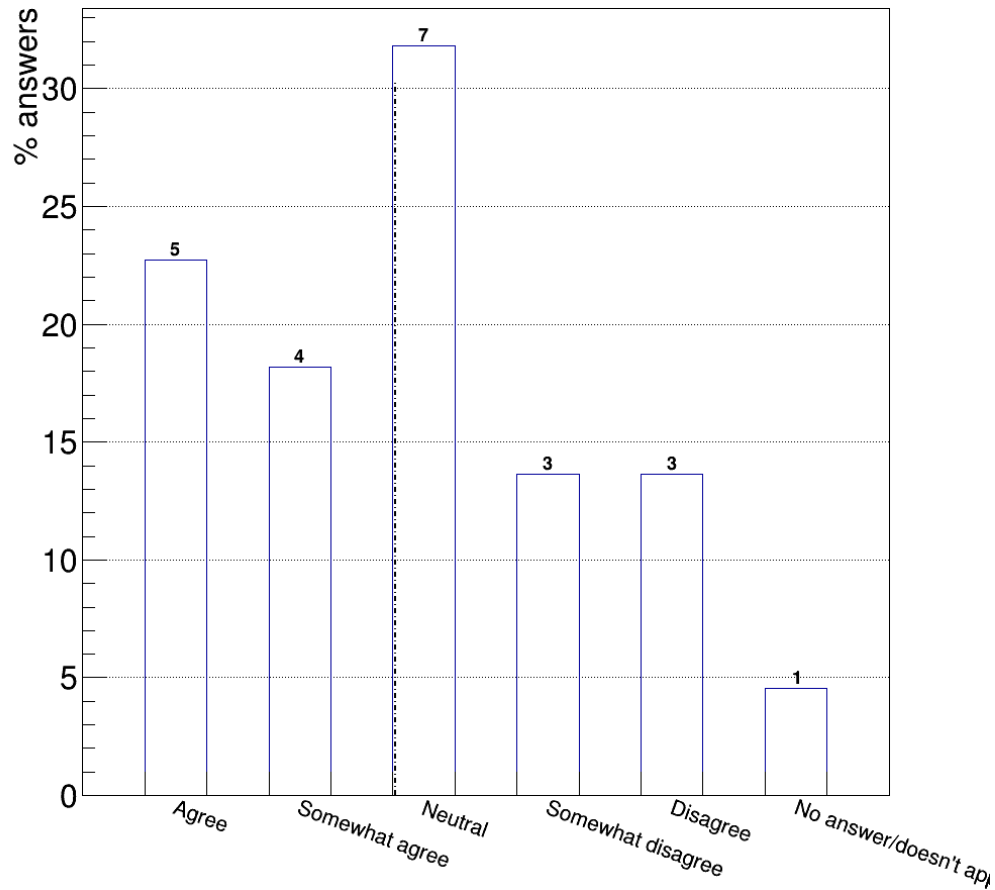


I received testimonies pointing out that under the pressure and the working conditions, a phd thesis can have important negative effects on the well-being of the student.

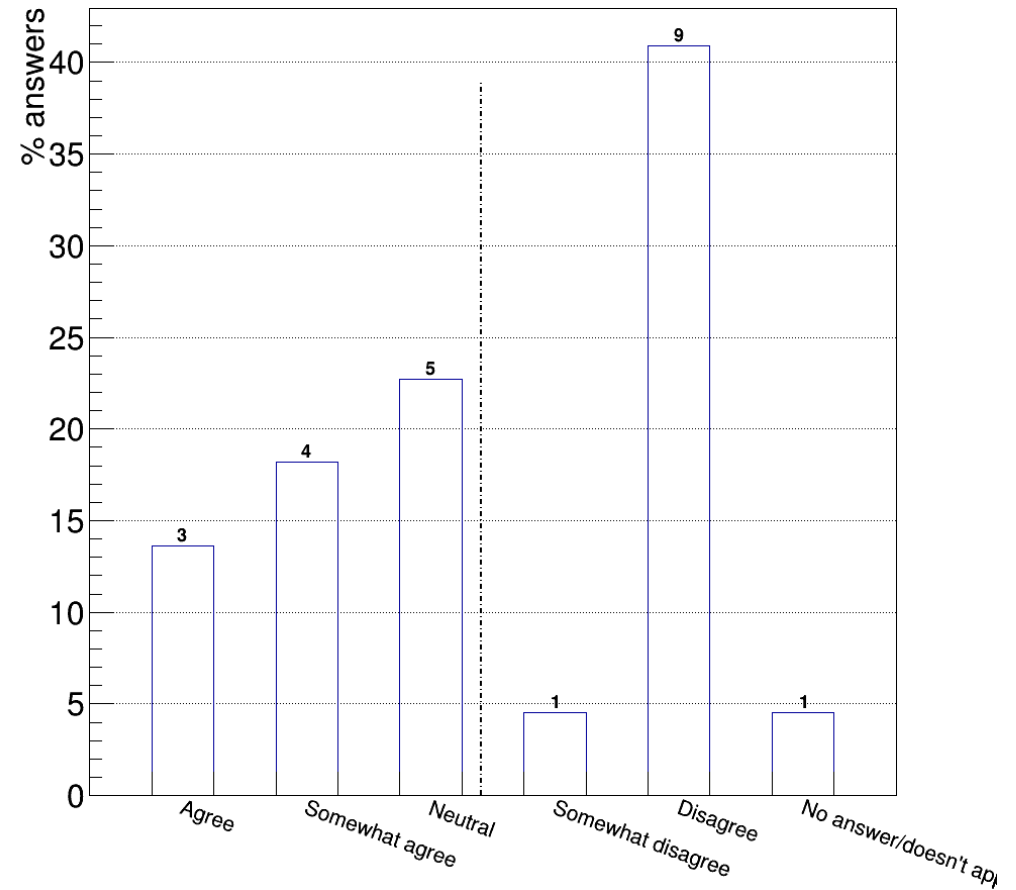
In backup : I am currently thinking about quitting
I had to do major sacrifices for my phd

Well-being at work

I can talk about these problems with my supervisor

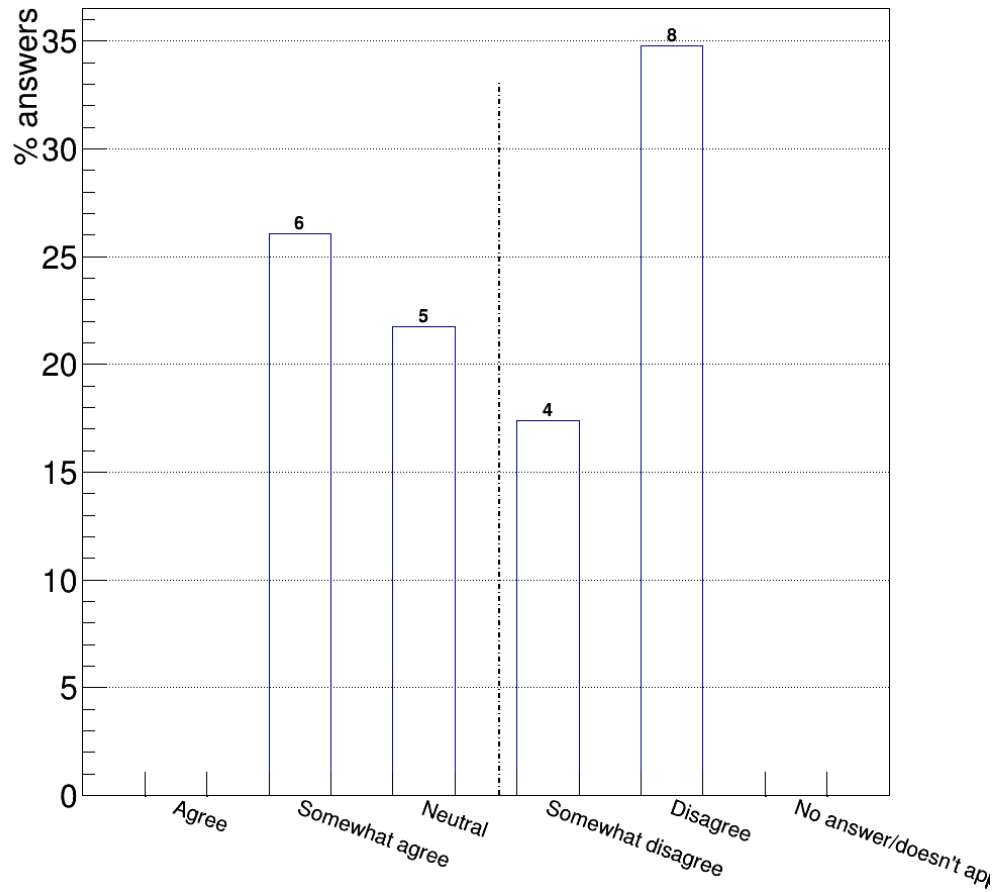


I would accept my work conditions in the private sector.

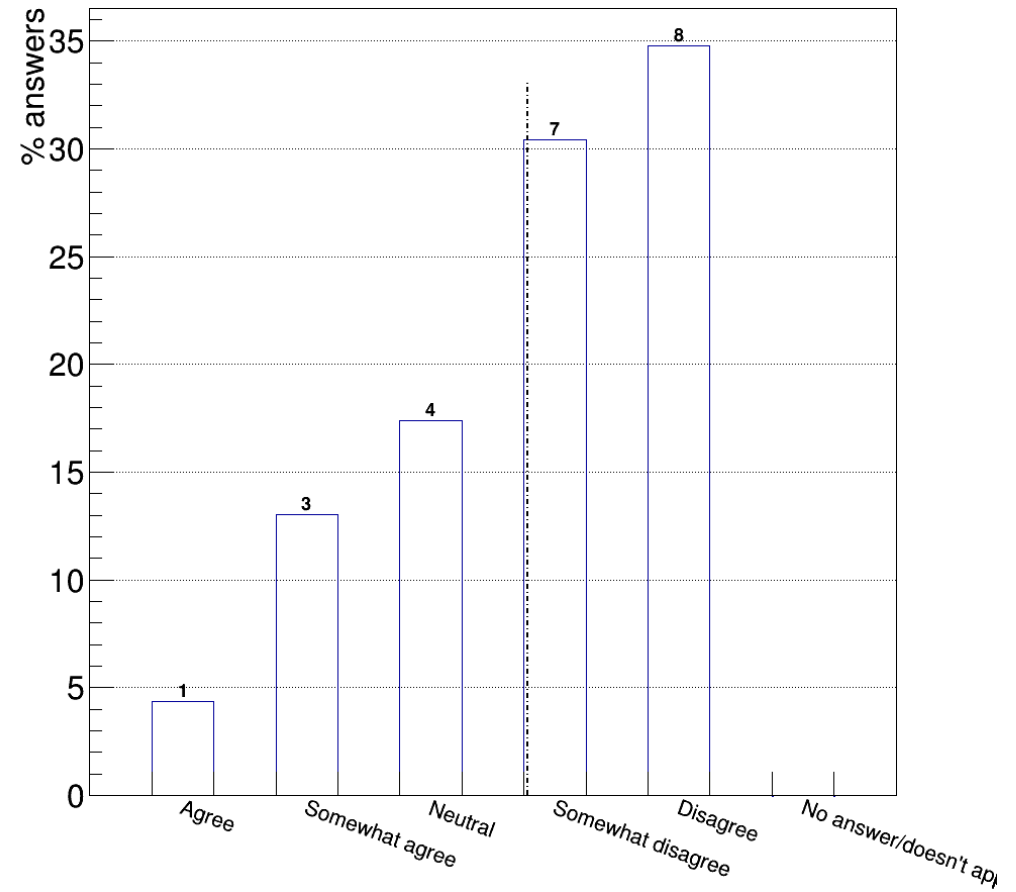


Future of research

There is sufficient funding for new phd students.

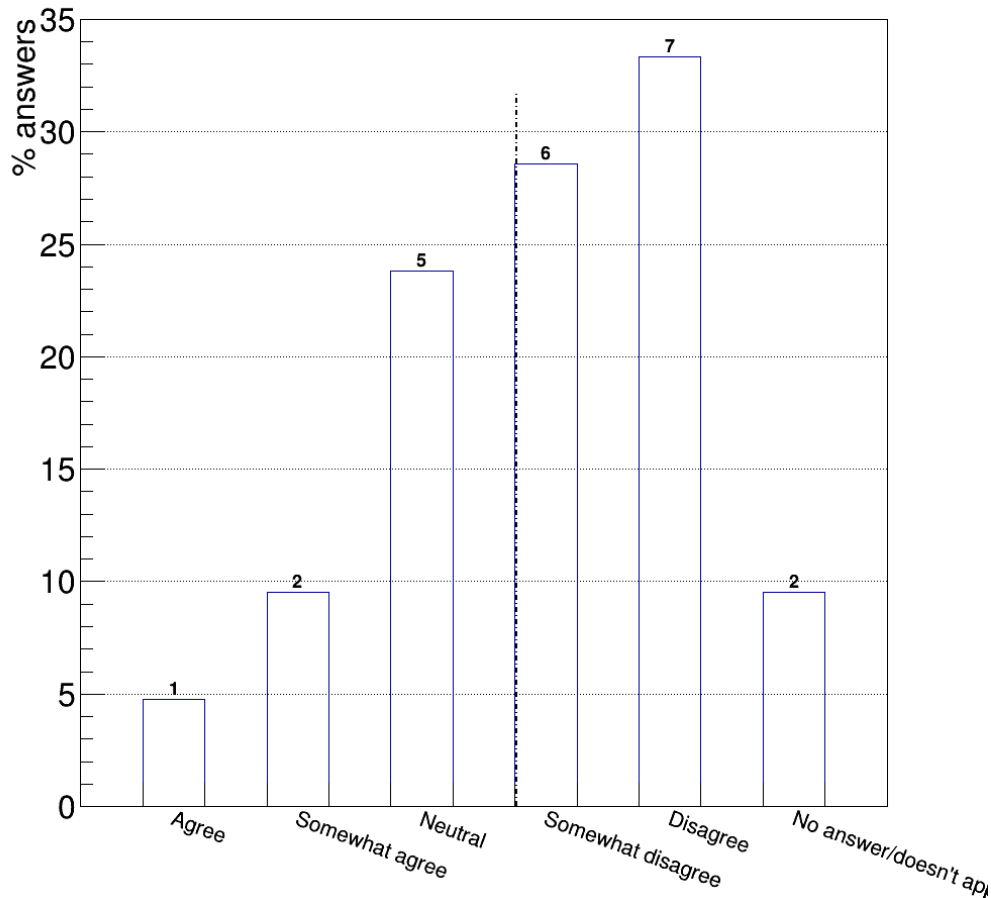


There is sufficient funding for new research in general.

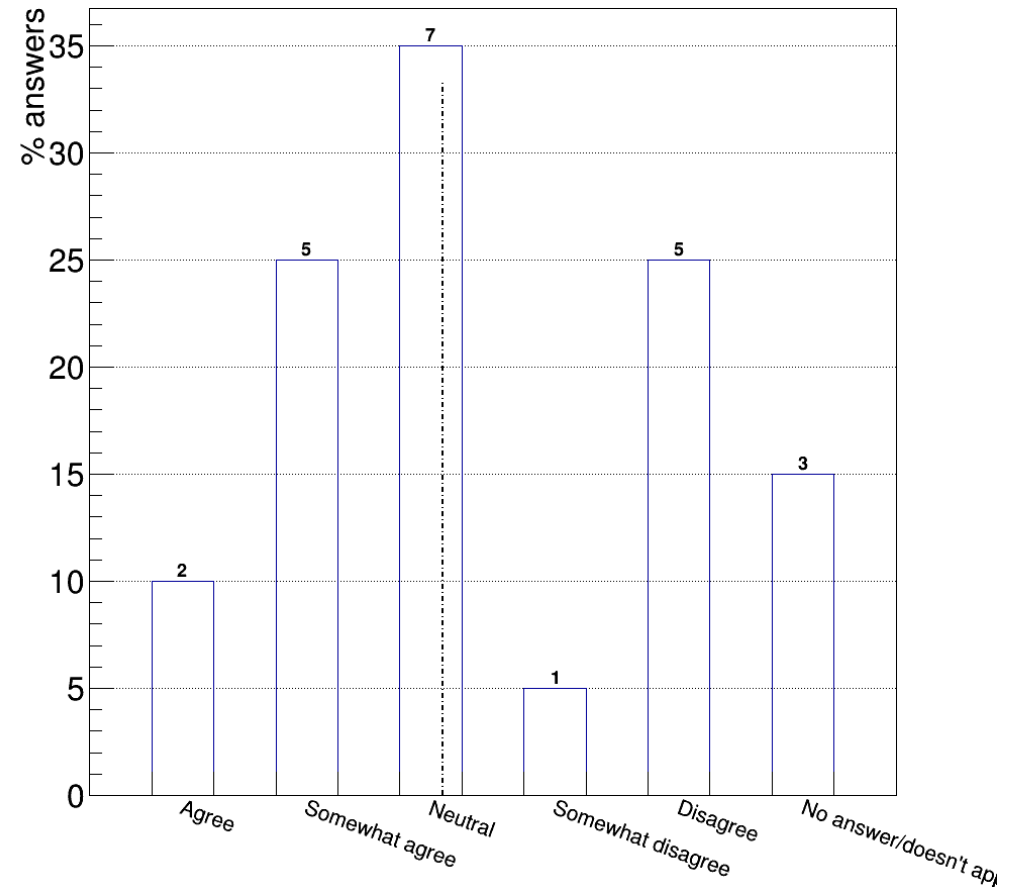


Future of research

I agree with the evolution of research funding in Belgium.



I agree with the funding choices for new projects.



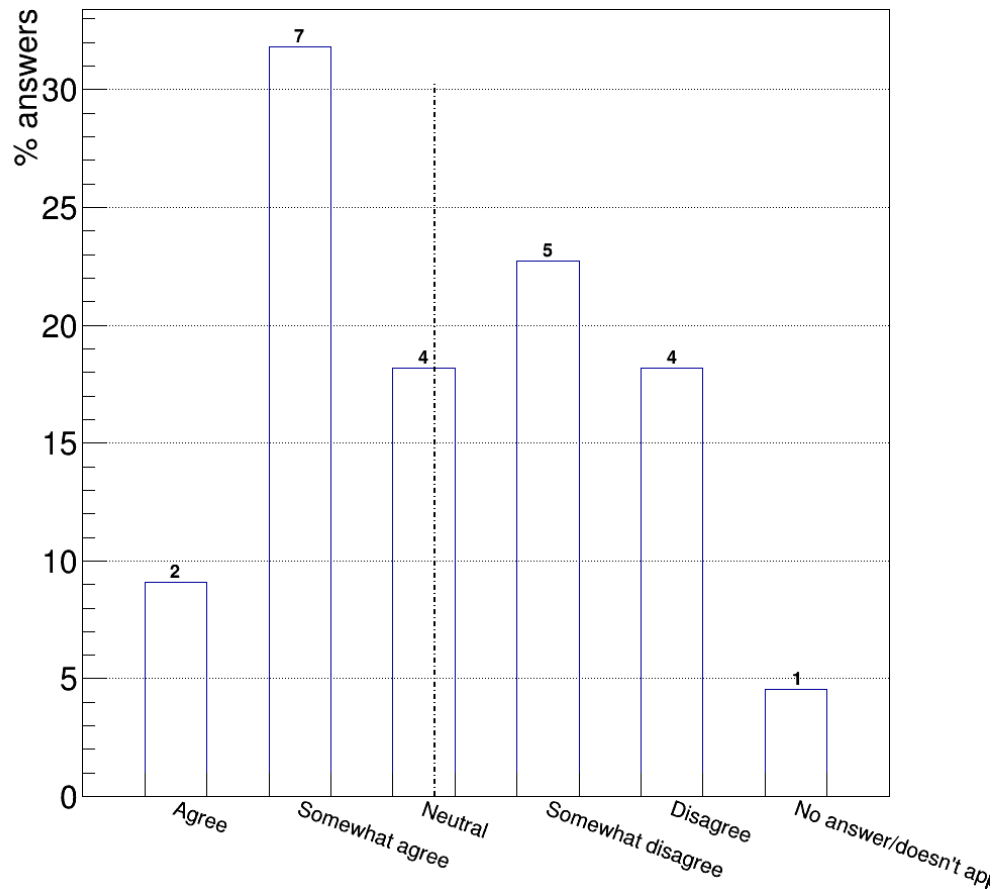
What future project(s) would you want to see funded in priority ?

Neutrino mass measurement
Sustainable energy and food sources.
Fundamental aspects of quantum field theories

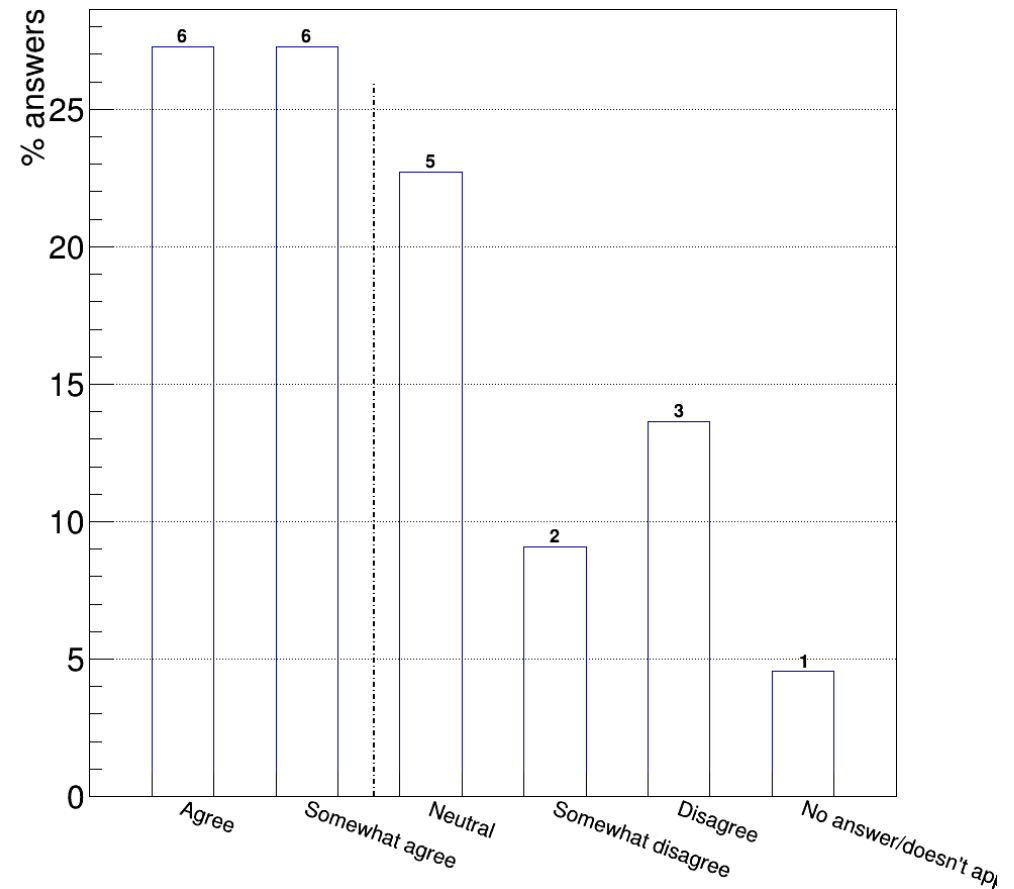
Research in new technologies that would help reach higher energy frontiers
Myrrha
IceCube Gen2 (x2)

Future of research

New discoveries will be made within 7 years at the LHC



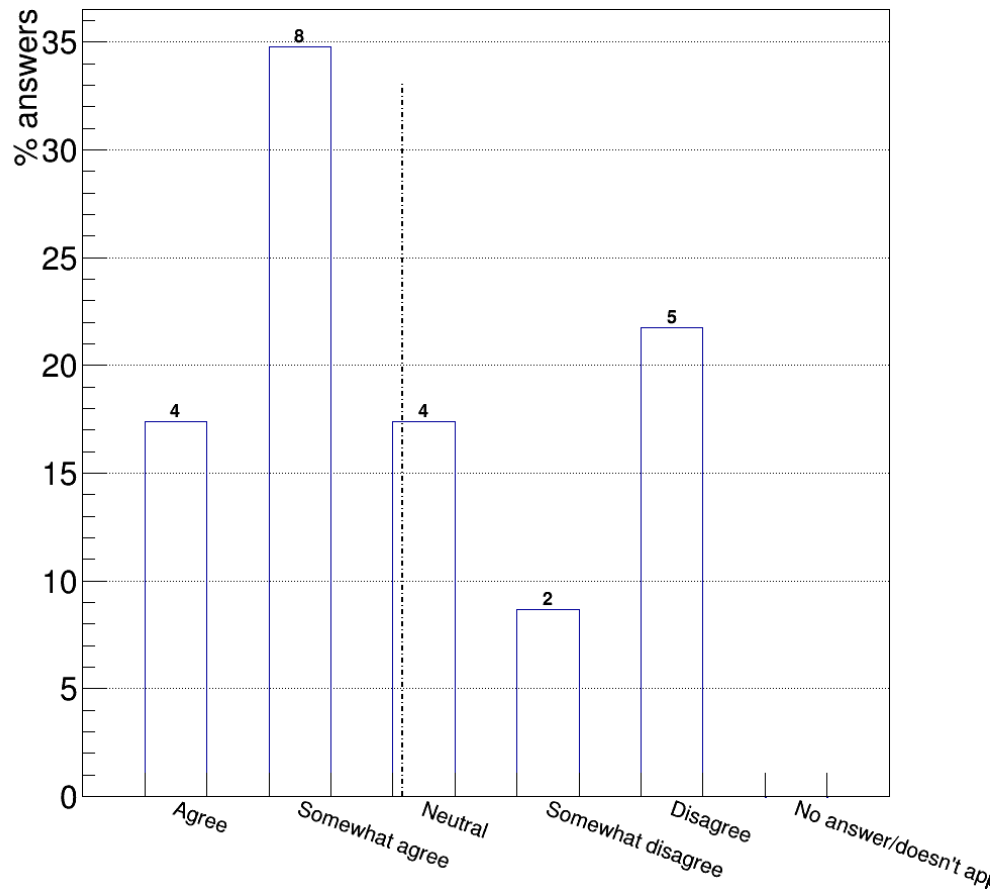
New discoveries will be made within 20 years at the LHC



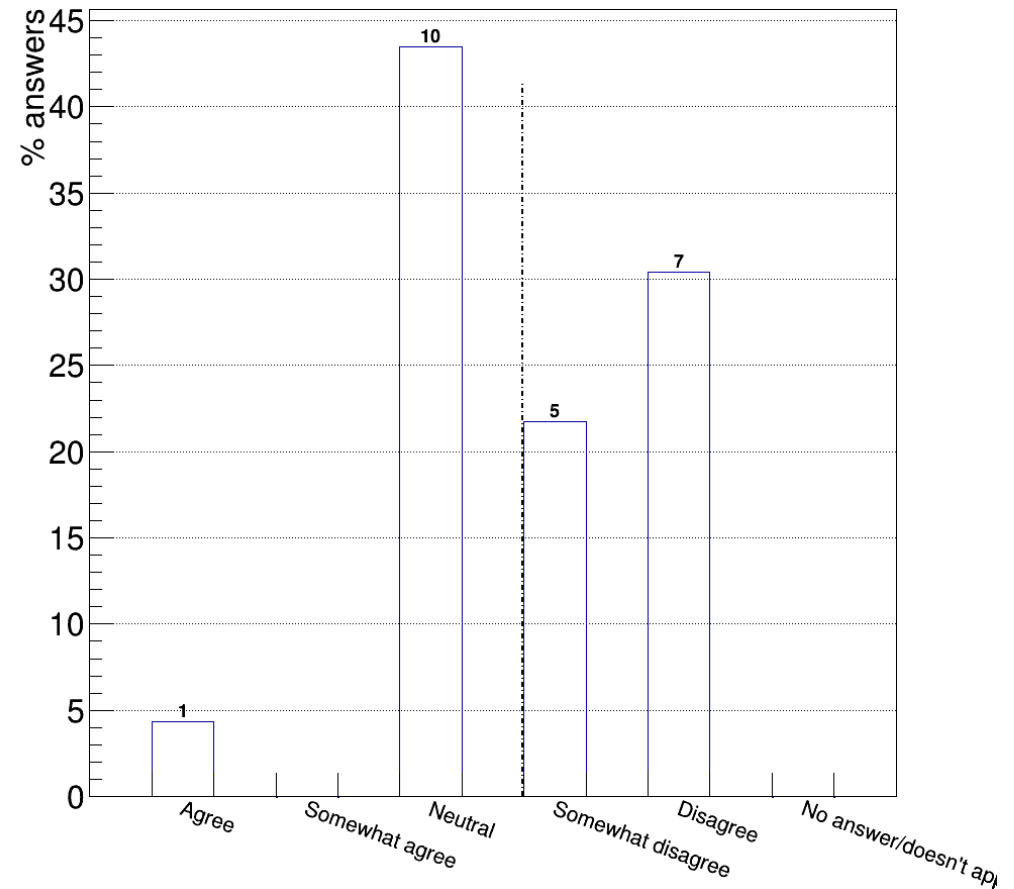
[...] It depends about what we call discoveries. I don't think we will have a "breaking news" discovery (SUSY,...), but indirect important results might still come as well as important measurements.

About academia

Academia cares about keeping good researchers.



A very good student is assured a career in academia.

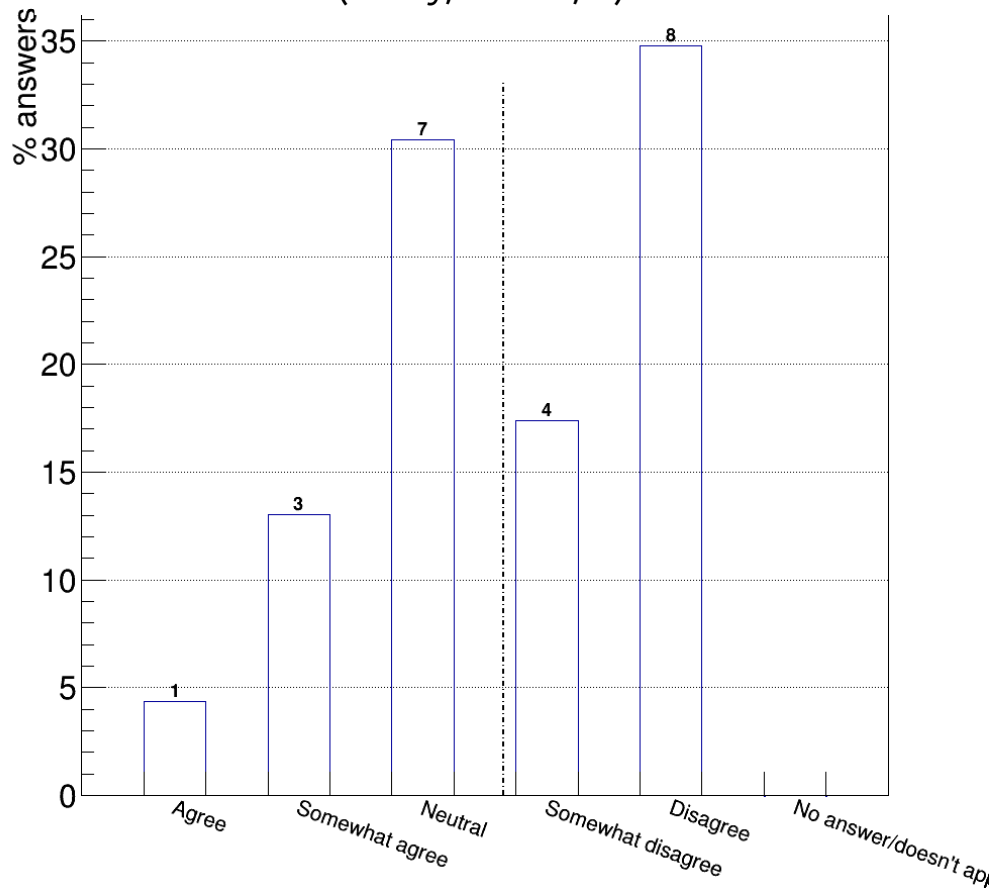


None of the people whom I've seen graduate in my group continued as researchers, so it doesn't seem like they were assured a meaningful career in academia

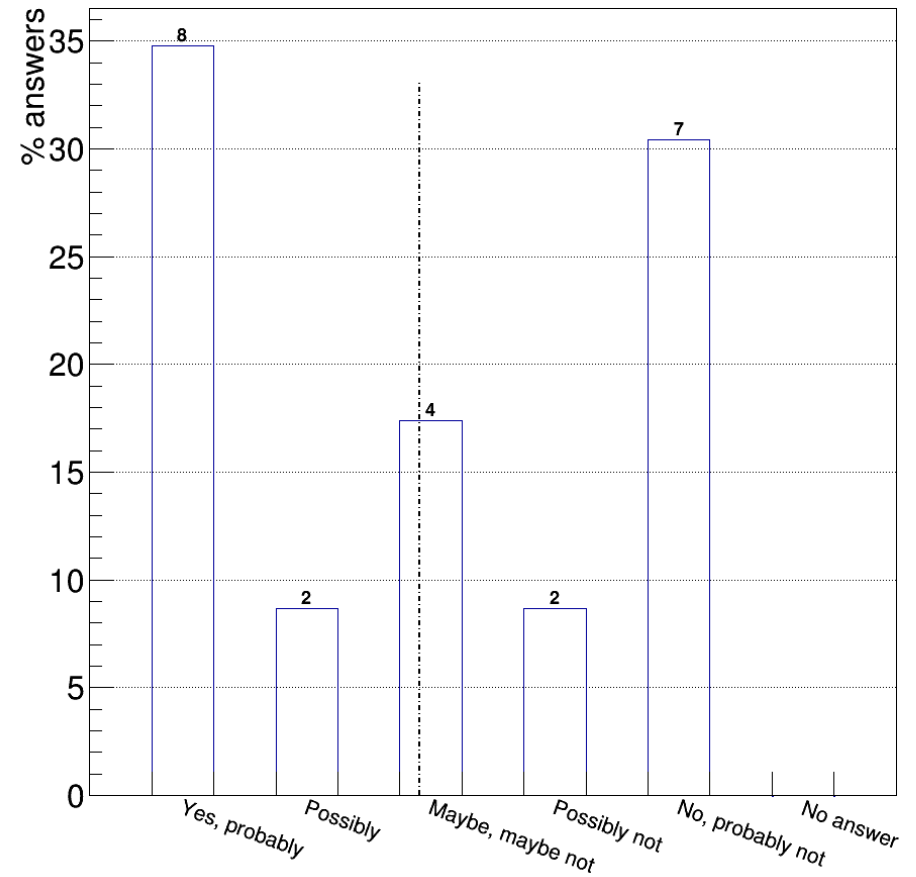
The ratio of (PhD students + Post Docs) / (Permanent Researchers) is too high, there needs to be more permanent positions

About academia – career plans

A career in academia is compatible with my life choices
(family, friends, ...)



Will you try to pursue a career in academia?



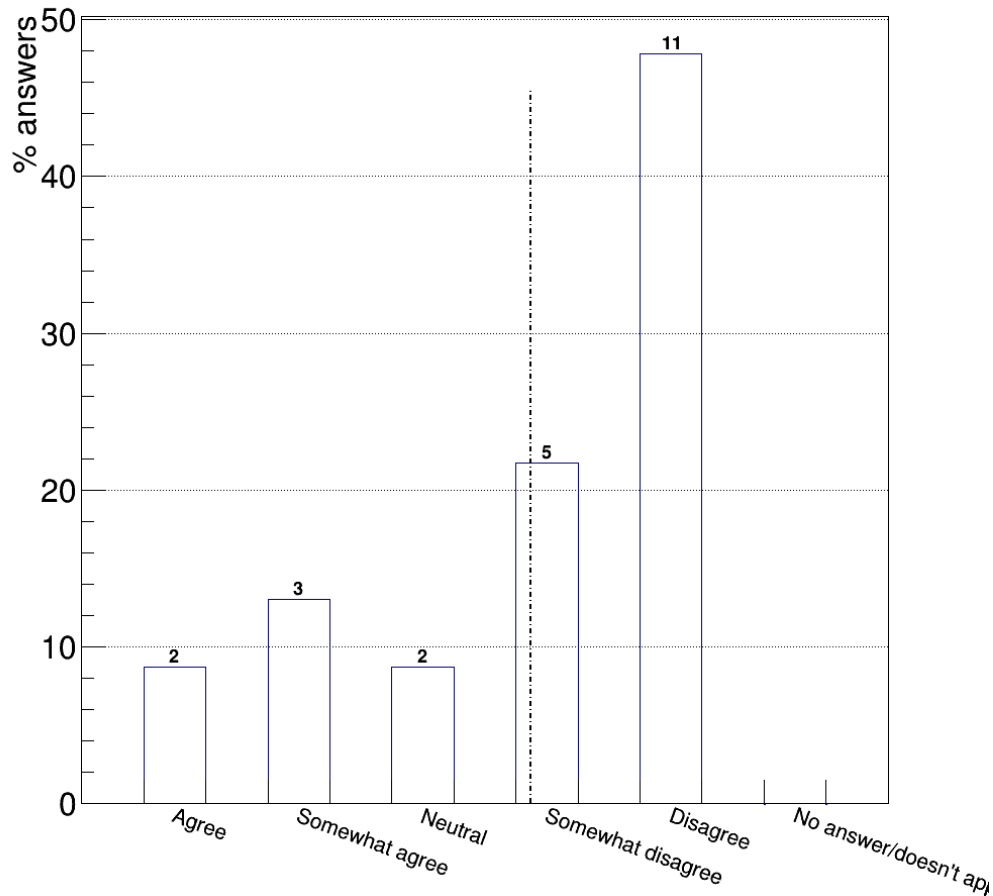
Paraphrased comment :

While it is compatible with friends (flexible working hours), being forced to live abroad can prevent you from keeping your family together.

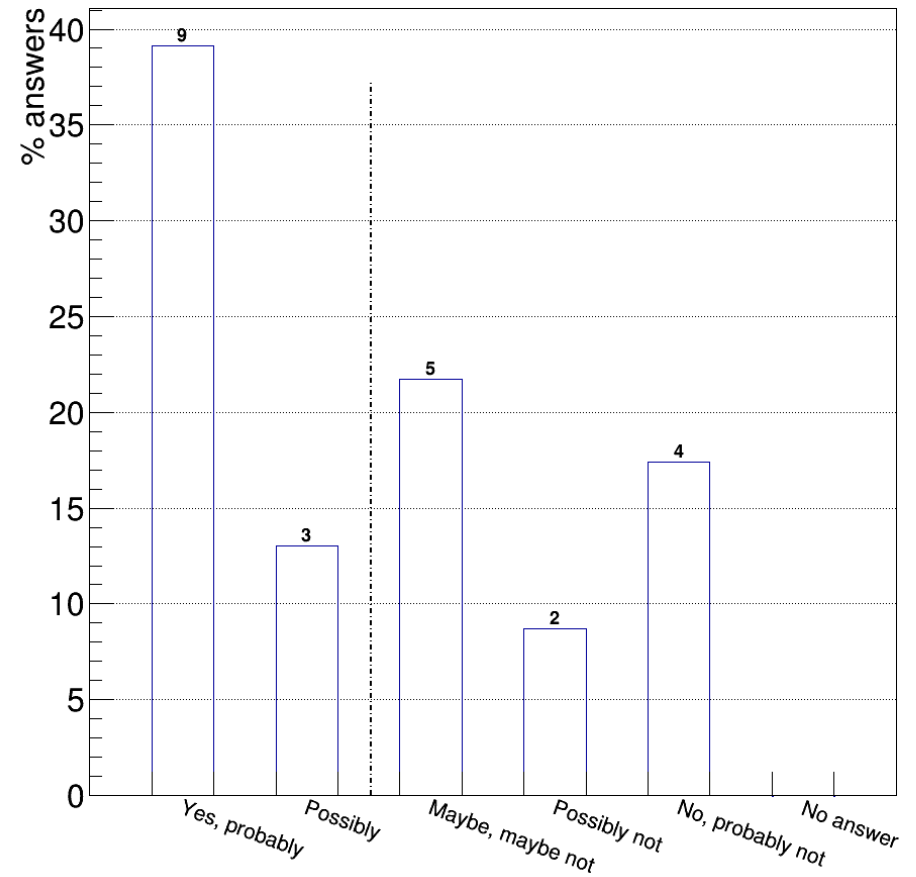
In backup : Academia is compatible with my life projects

Career plans

My career path is clear.



Will you apply for a postdoc?



In backup : If you were offered a position, would you stay in academia?

Would you easily find an interesting job in the industry?

Would your phd be an asset in finding an interesting job in the industry ?

Career plans

Why would you pursue a career in academia?

- Investigating nature at the frontier of knowledge is one of the most interesting jobs.
 - Interested in the subject, would allow to continue in particle physics...
- Very rich and stimulating environment (e.g. brings together people from all over the world).
 - Interesting environment
- Secure position

Career plans

Why wouldn't you pursue a career in academia?

- Too hard/uncertain.
- Would need multiple post-docs. Unattractive lifestyle.
 - Most cited reason
- Bad prospects in the field :
 - experimental particle physics somewhat in a dead end
 - In theoretical particle physics :
[...] solid research topics have already been explored at large, while what remains to be done often requires huge efforts with rapidly diminishing returns [...]
- Aggressive corporate-like environment [...] ; Pyramid scheme [...].
 - Not worth the harsh environment
- Difficult to recycle academia experience.

Conclusions

I'll let you draw your own!

[Link to the survey](#)



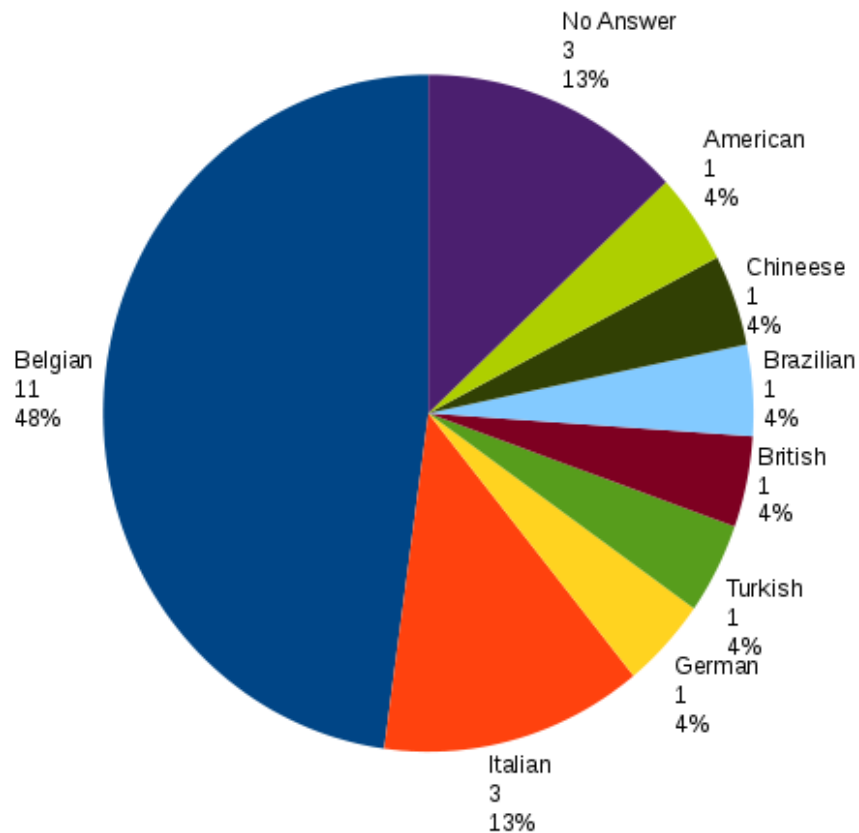
Thank you for your attention!

BACKUP

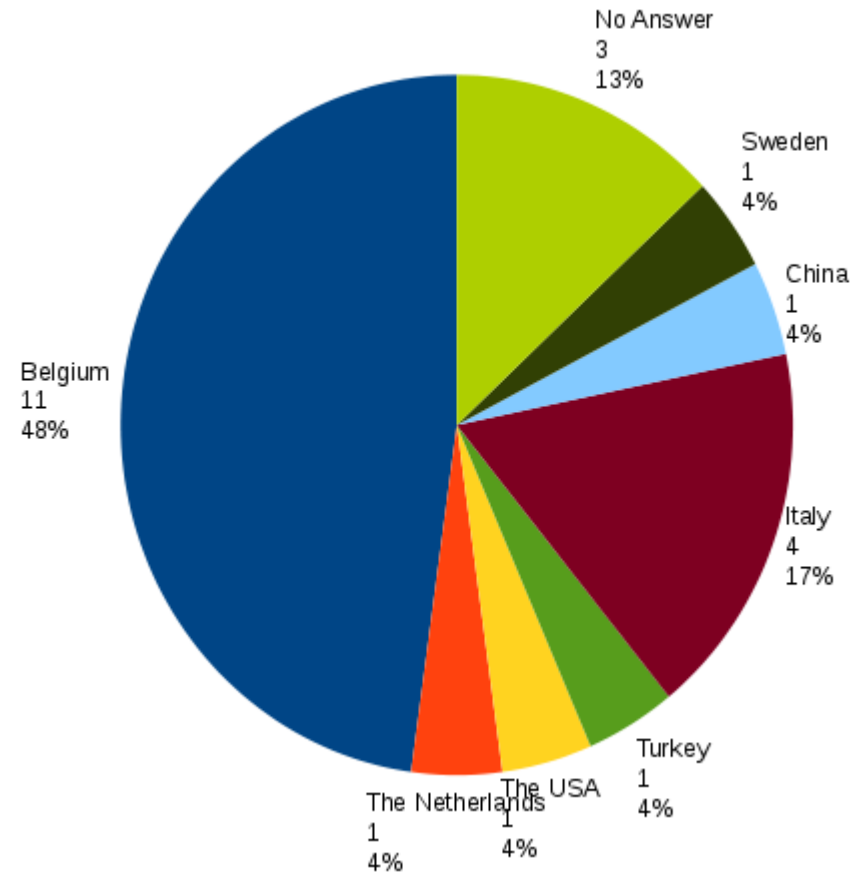
What is a phd in high energy physics in Belgium ?

Who answered the poll

Nationality(ies)



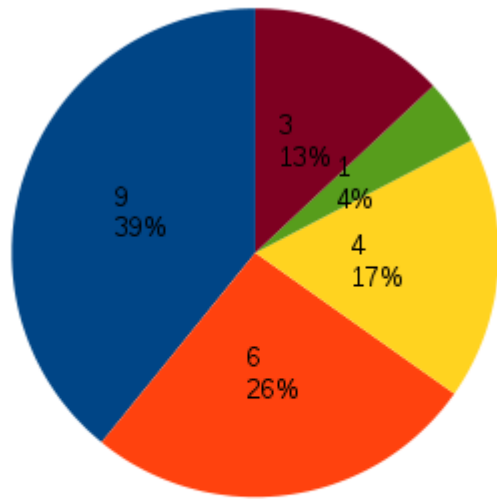
Country(ies) of graduation



What is a phd in high energy physics in Belgium ?

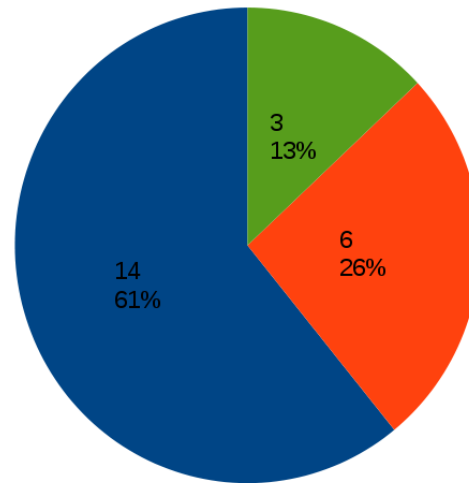
Who answered the poll

University



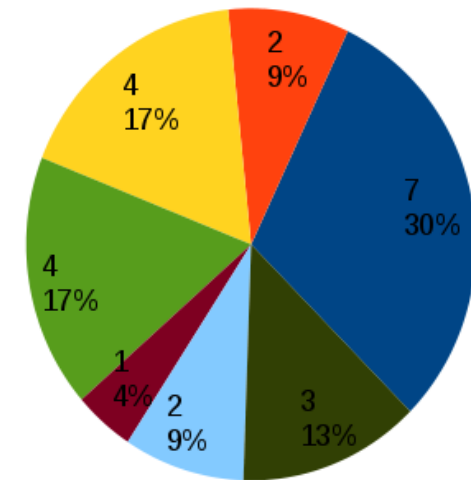
- UCL
- ULB
- VUB
- Ugent
- No Answer

Gender



- Male
- Female
- Other
- I don't want to specify

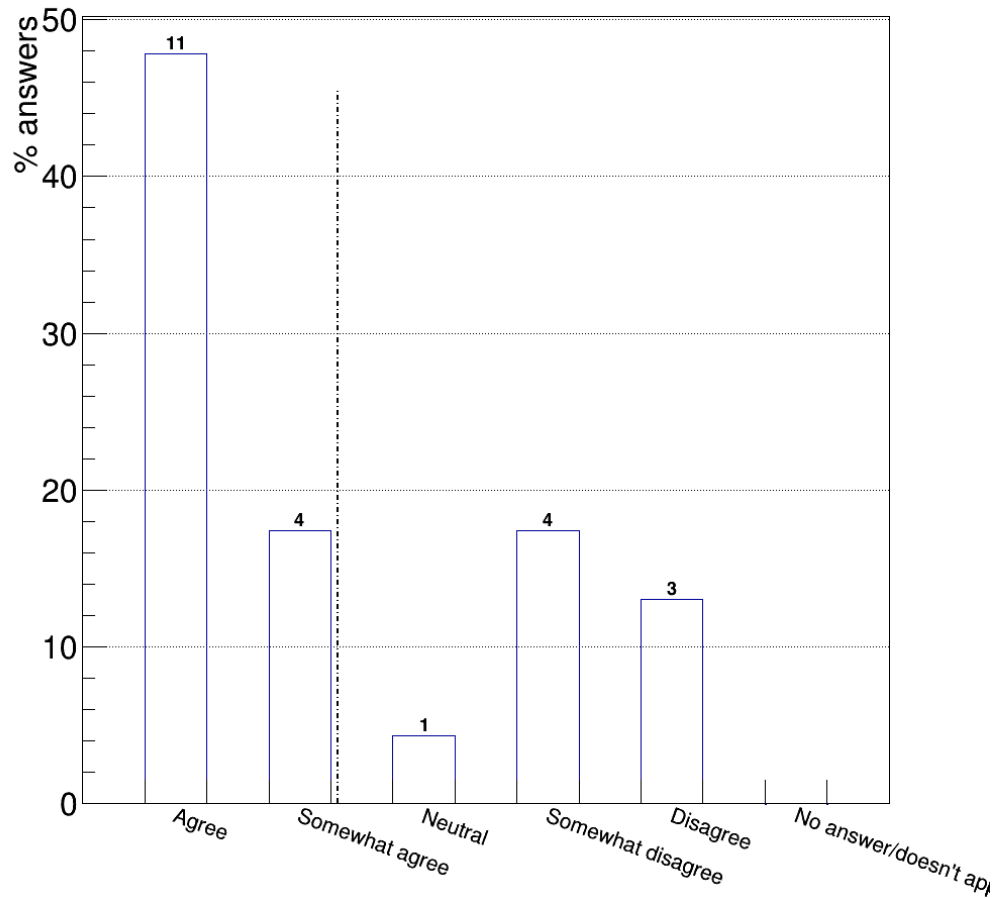
Funding



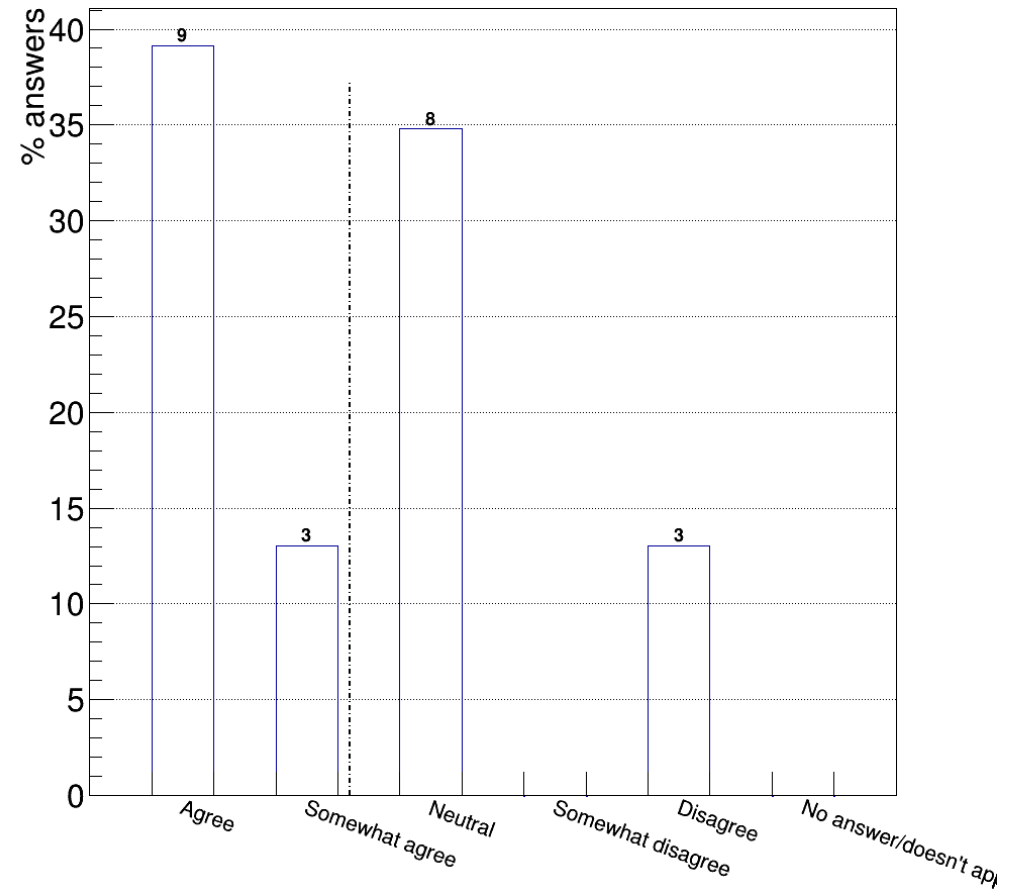
- General research projects owned by supervisor
- IAP / PAI
- FNRS / FWO
- FRIA / IWT
- University grant
- Teacher's assistant
- I don't know / I don't want to specify

What are the relations with the supervisor?

I often discuss work with my supervisor

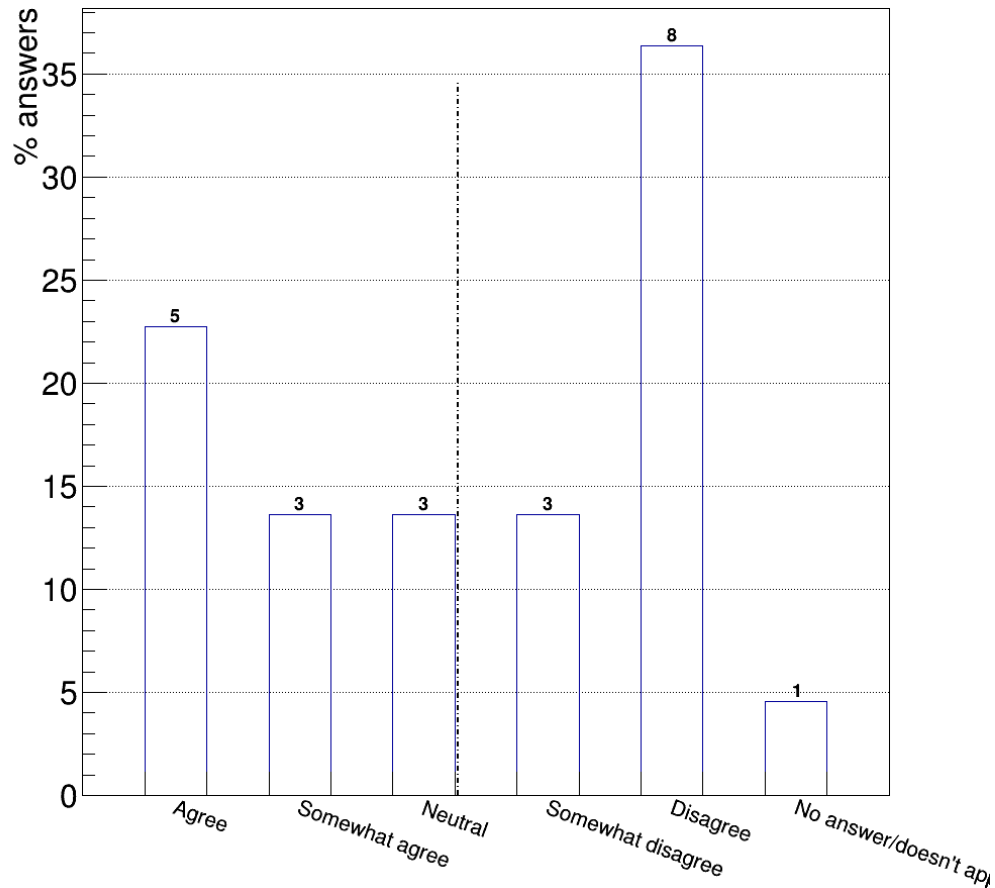


My supervisor makes me feel valuable.

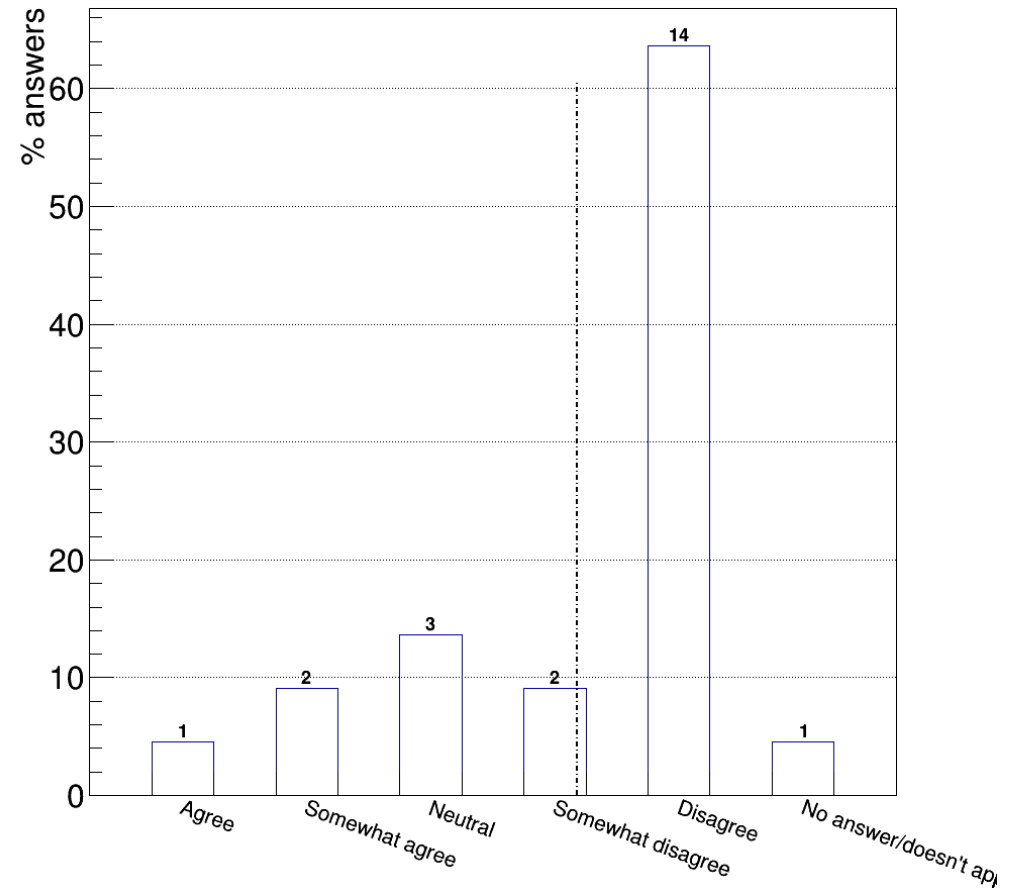


What are the relations with the supervisor?

I sometimes wish I had a more dedicated supervisor.



I sometimes wish I had a more competent supervisor.



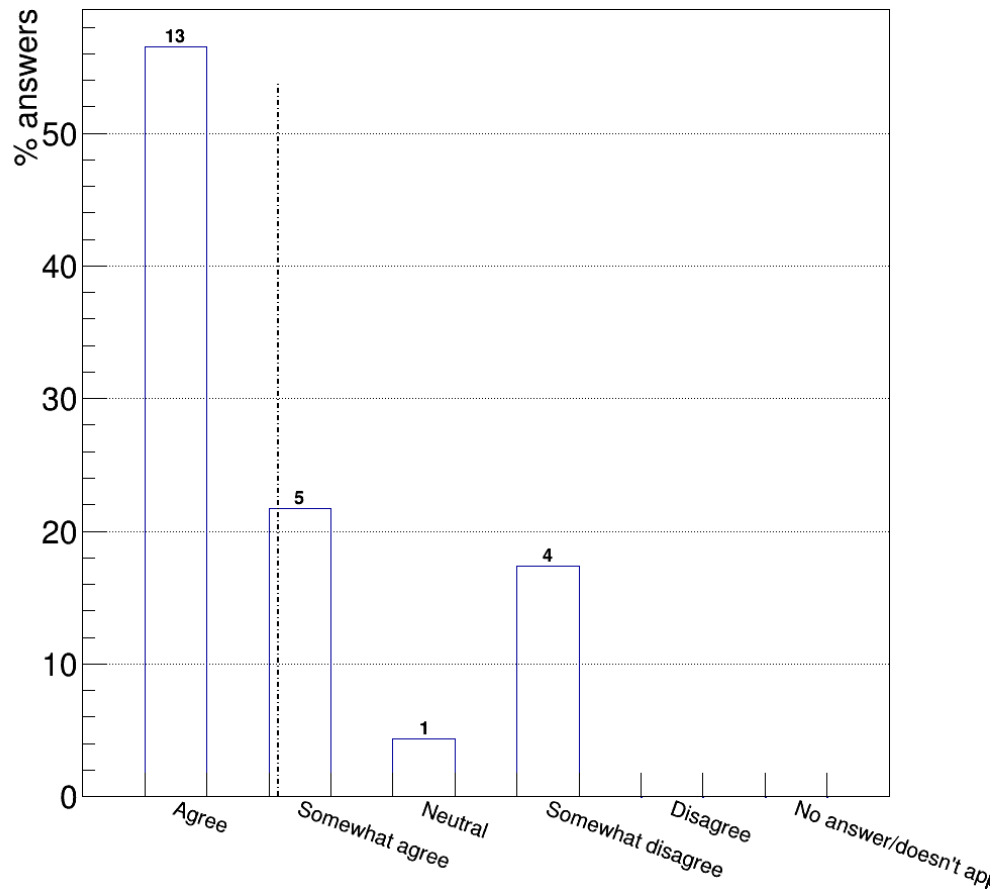
Paraphrased comment :

Like my colleagues, I have to keep tabs on when he'll be available. Maybe I'm imagining it, but he does seem to favour the others. He has very little time in general, though.

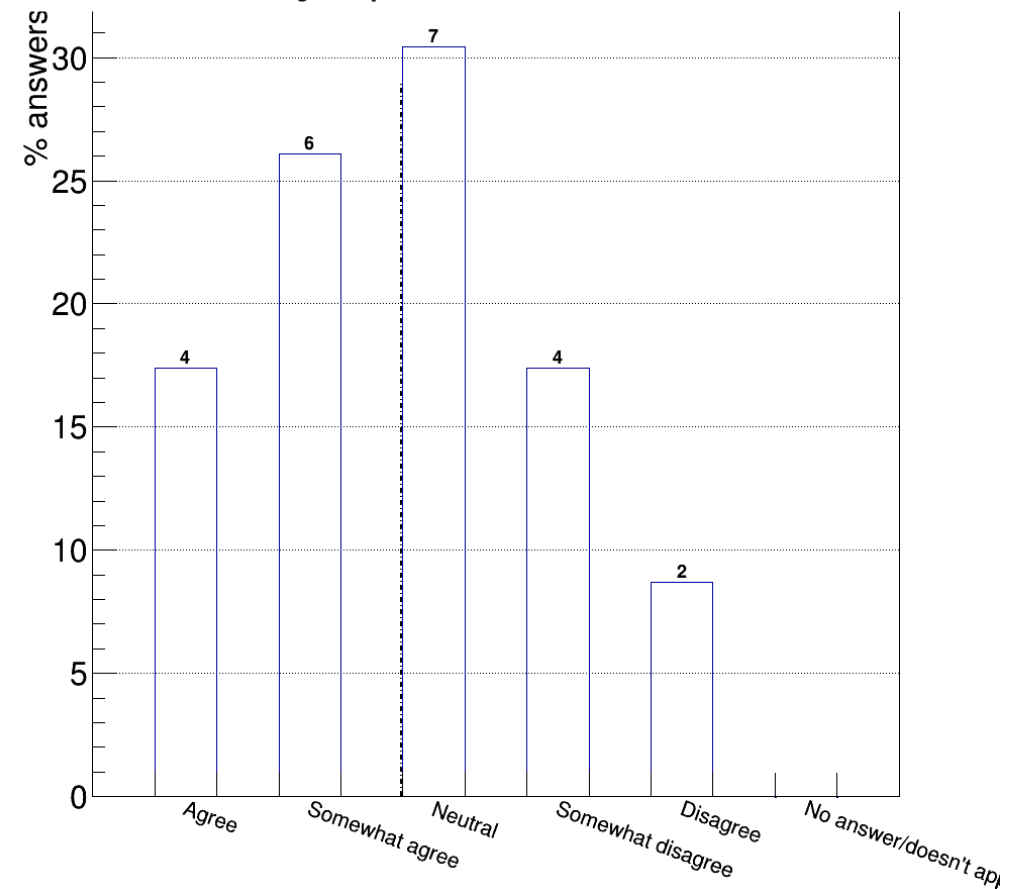
What are the relations with the supervisor?

Backup

My supervisor provides valuable inputs for my research.



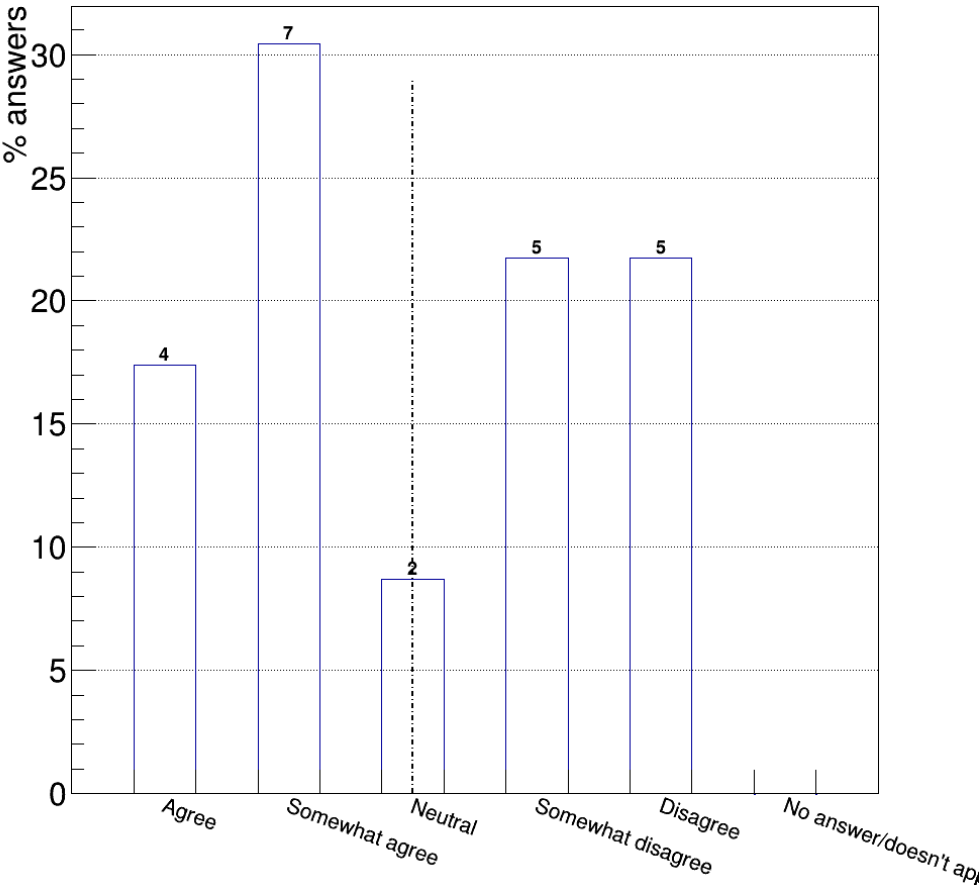
The input of other co-workers is more important than that of my supervisor



I often need to talk to experts to do parts of my thesis, and it's normal that on those topics they're more knowledgeable than my supervisor

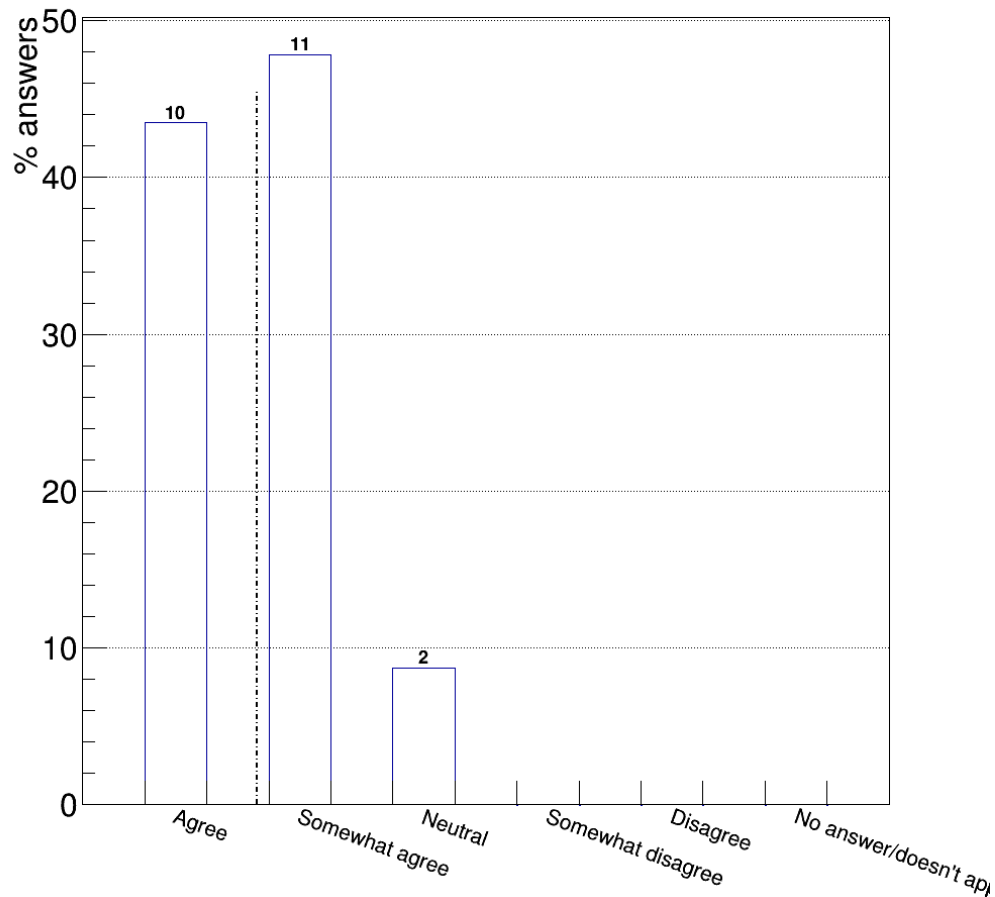
About the phd topic Extra...

My phd topic was well defined from the start.

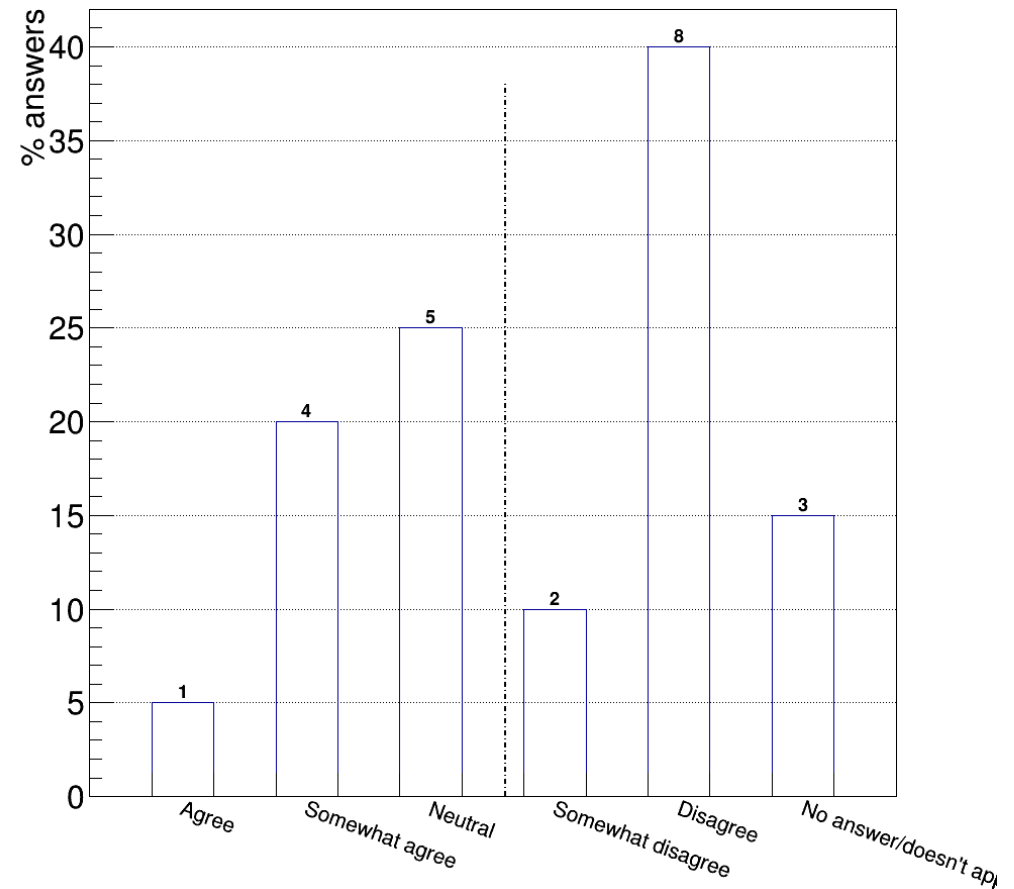


About the phd topic Backup

I find my phd topic meaningful.



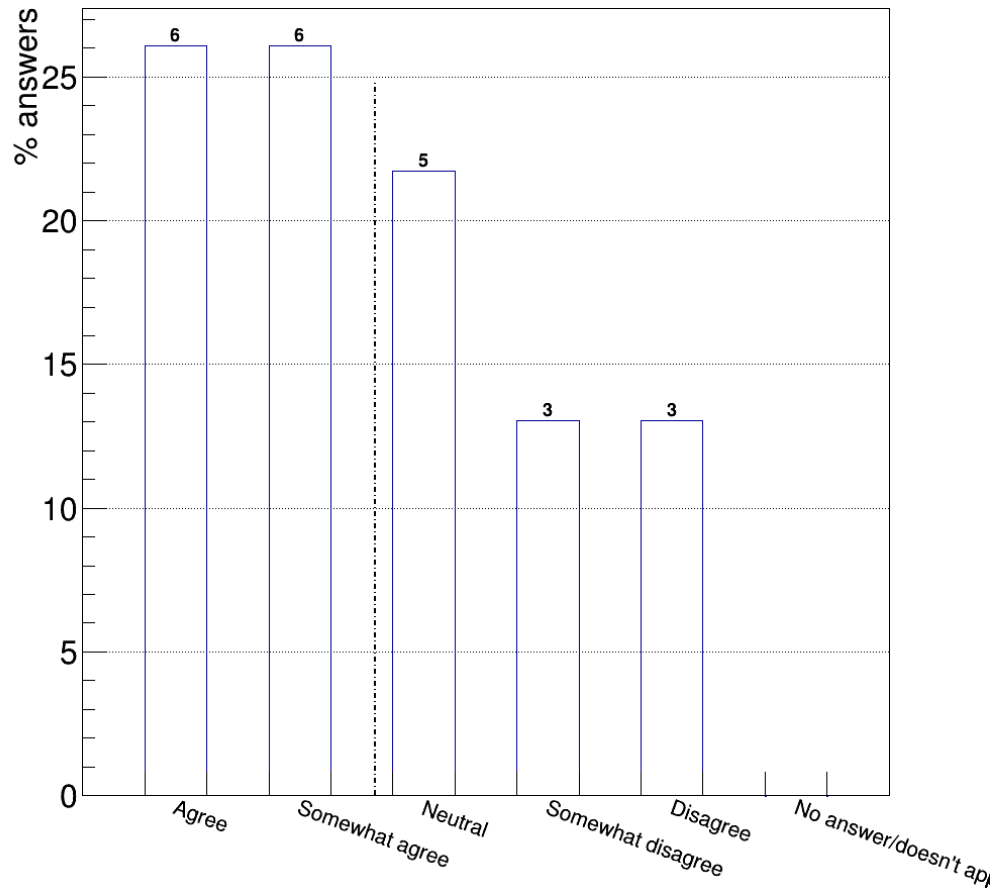
I feel that my thesis is important for the general public.



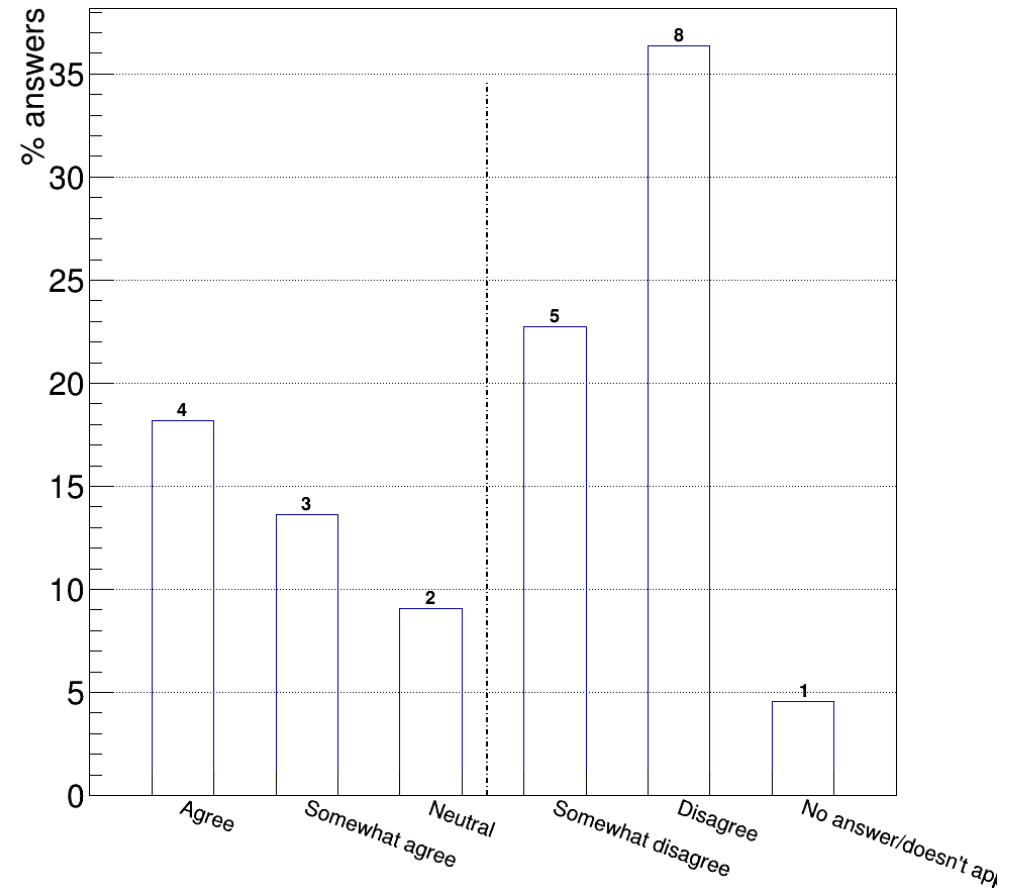
The goal of my thesis (or of any research activity) is not to be "important for the general public", to my sense...

Well-being at work

I feel that my university values me correctly.



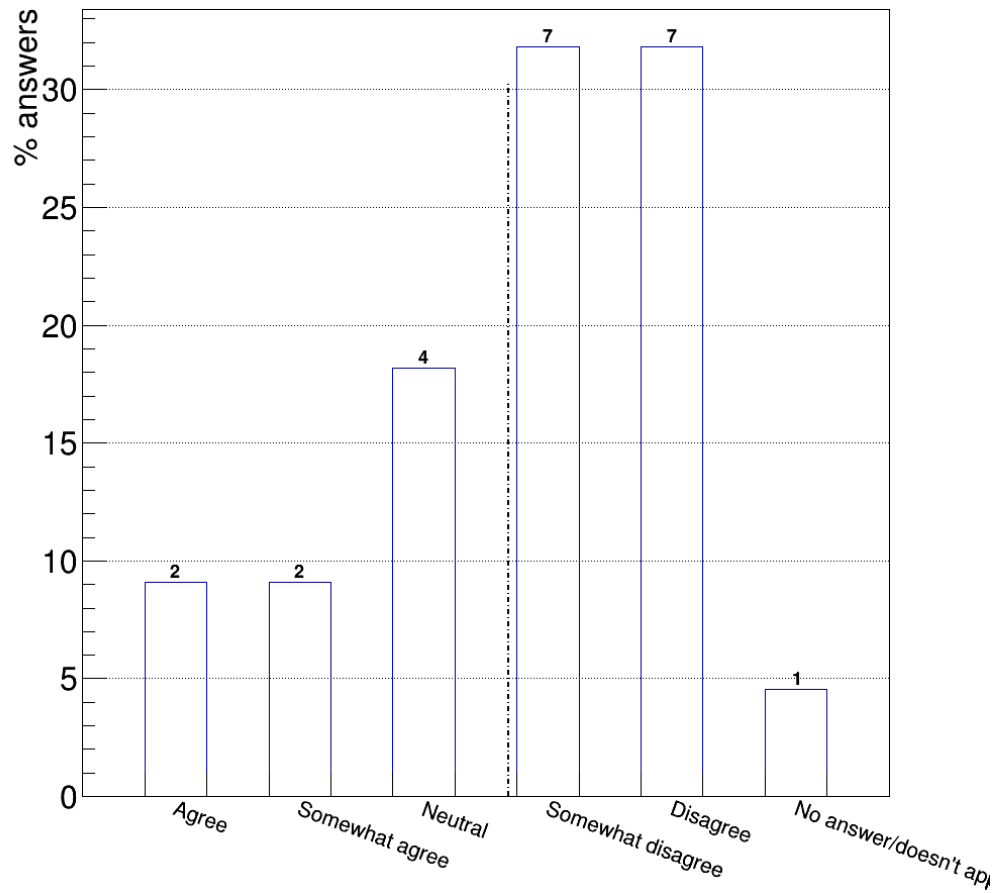
I have found difficulties sleeping because of my work.



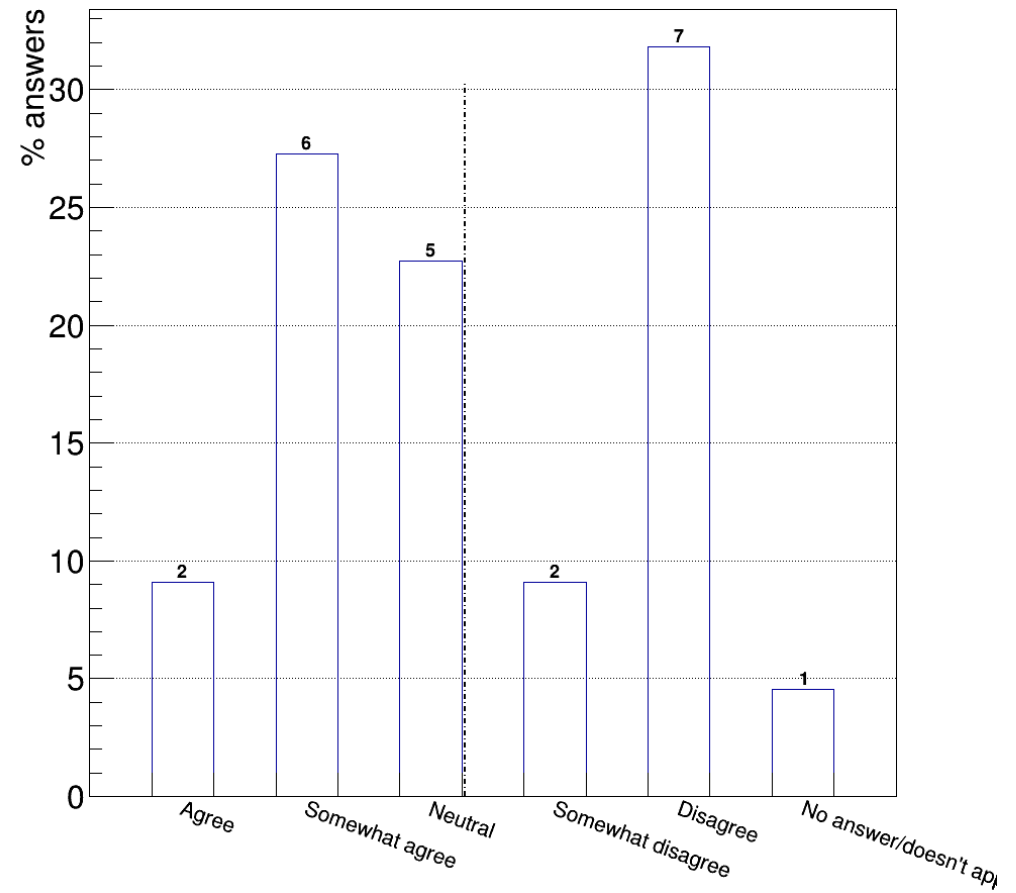
The ULB doesn't really care about non-francophone researchers

Well-being at work Extra...

I had to do major sacrifices for my phd.

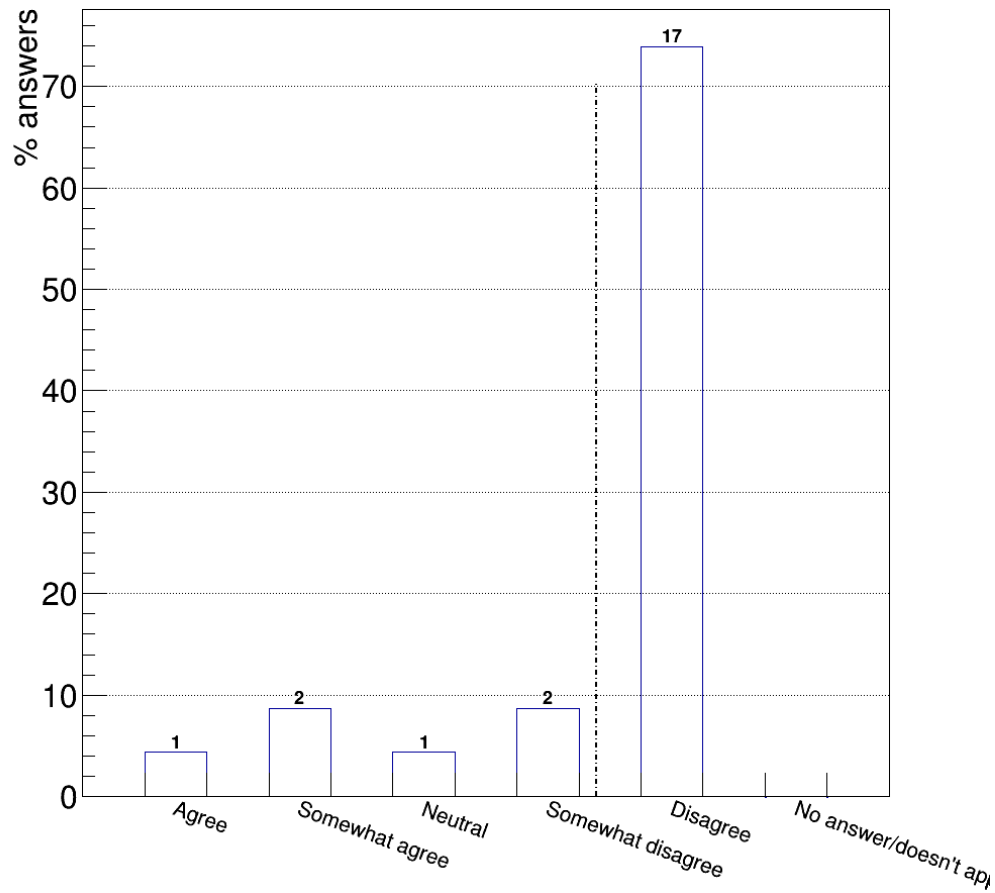


I suffer or have suffered from anxiety during my phd.

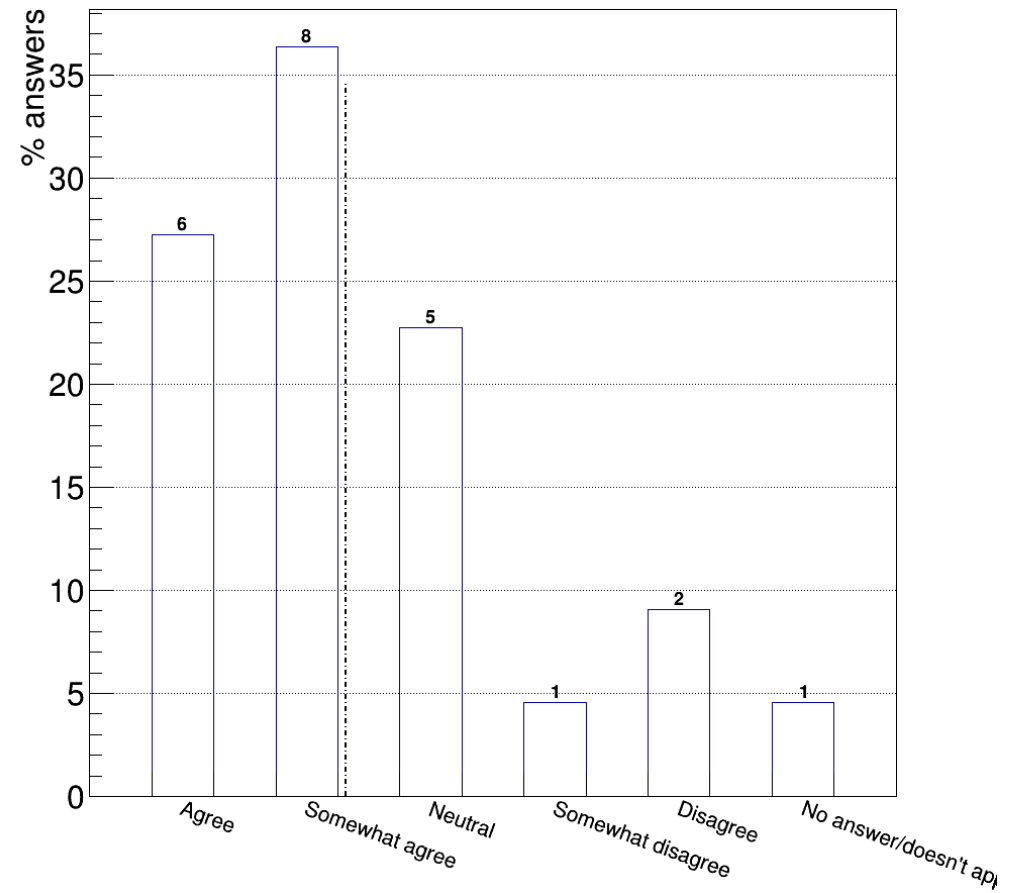


Well-being at work Extra...

I am currently thinking about quitting.

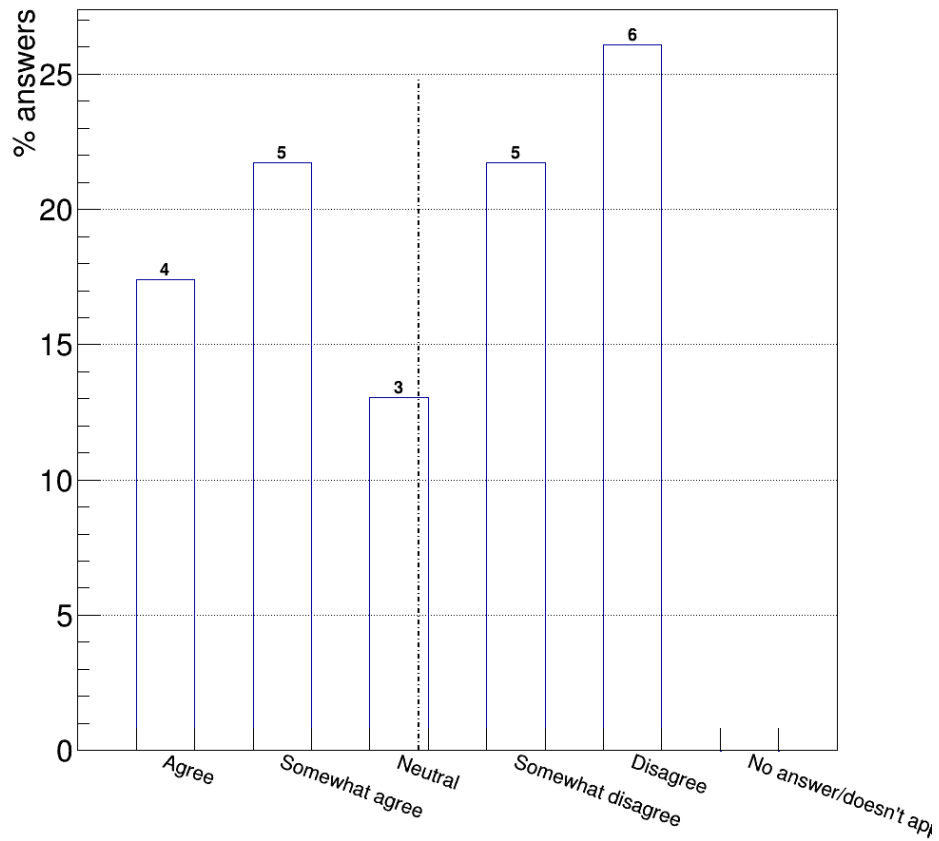


I can talk about these problems with my colleagues

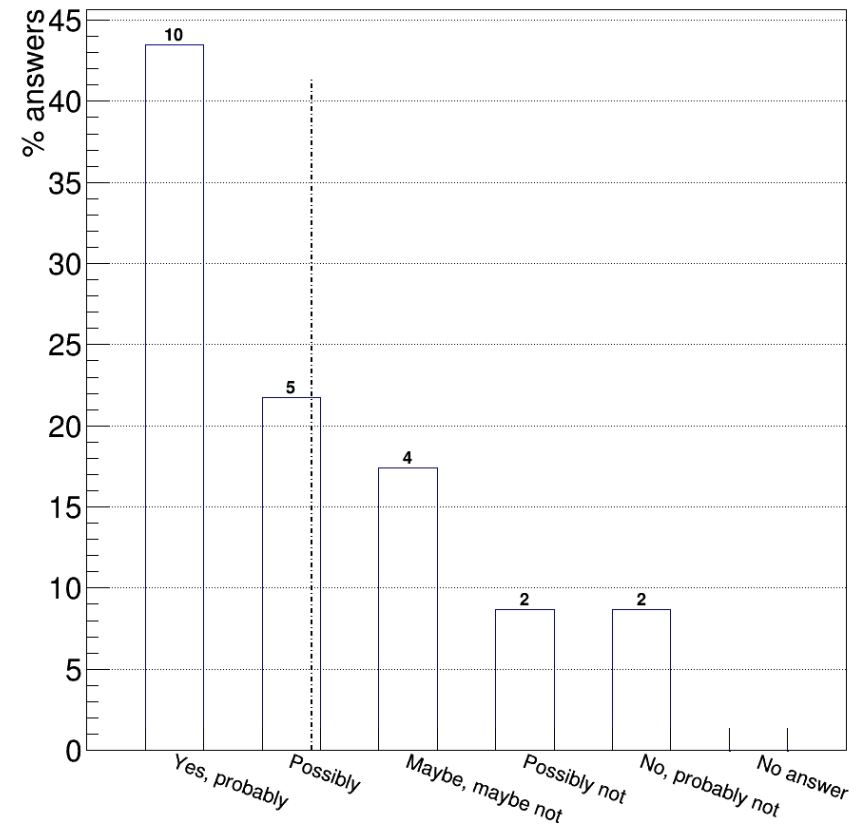


About academia Extra

Academia is compatible with my life projects.

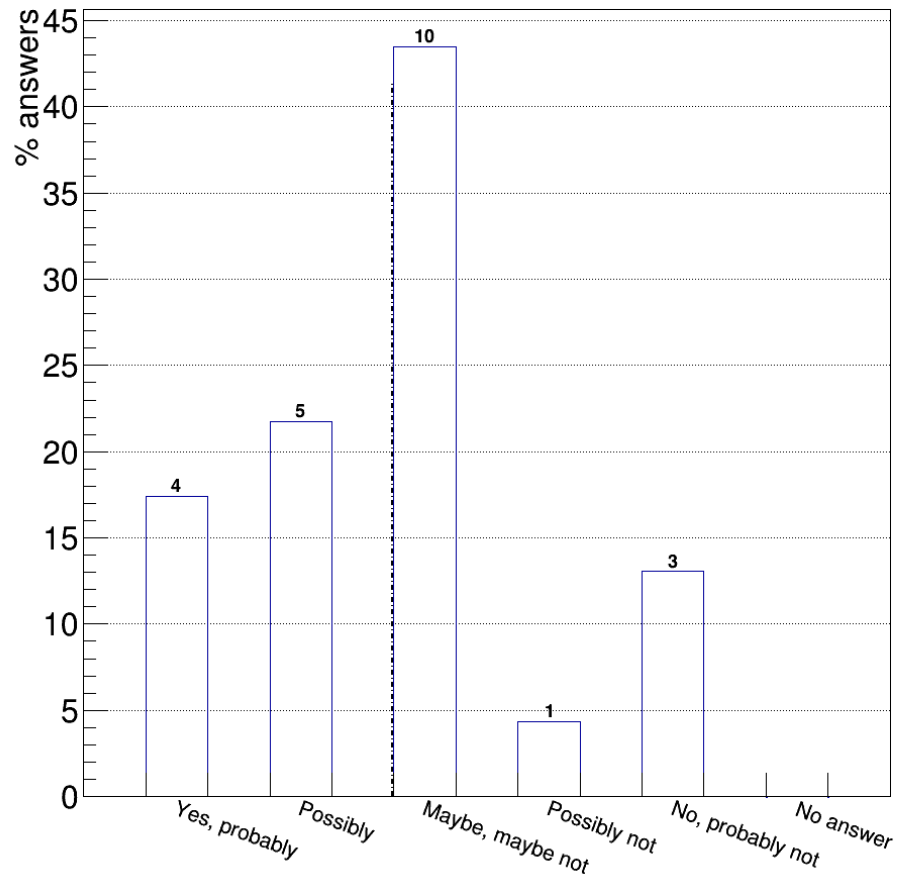


If you were offered a position, would you stay in academia?

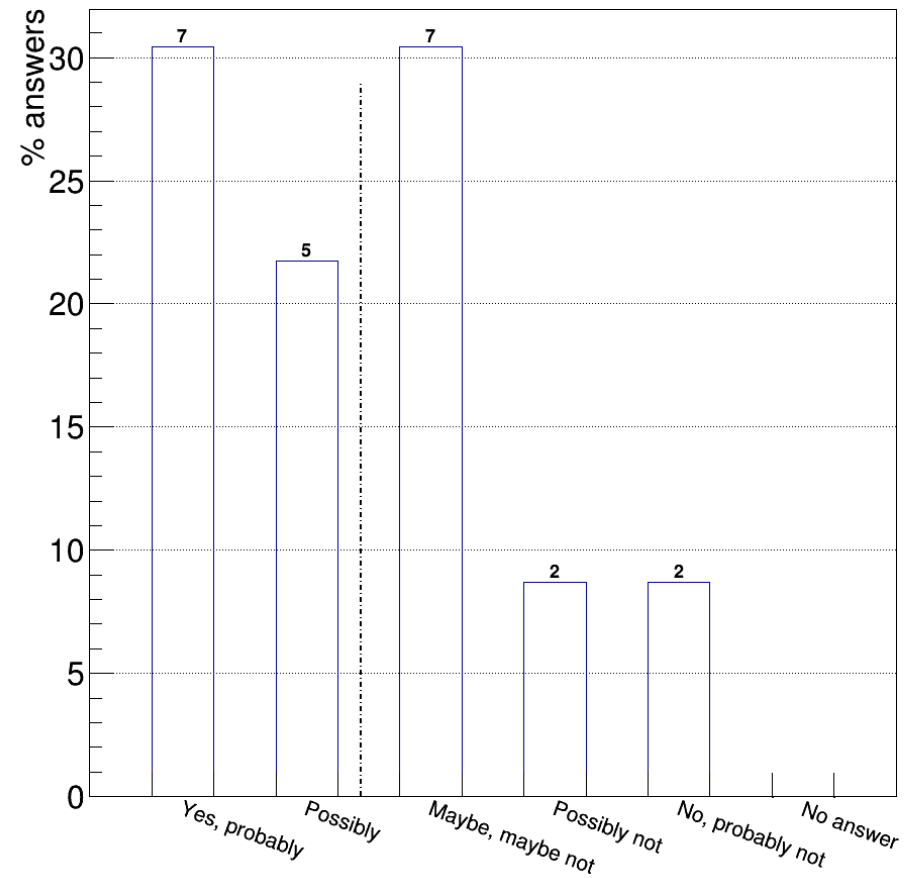


Career plans

Would you find easily an interesting job in the industry?



Would your phd be an asset in finding an interesting job in the industry?



Why would you pursue a career in academia ?

Secure position

Interesting environment

I love doing research

I am interested in theoretical high energy physics and enjoy working in academia.

Investigating Nature at the frontier of knowledge is one of the most interesting jobs.

Very rich and stimulating environment (e.g. brings together people from all over the world).

I would because it would allow me to continue on in particle physics.

Why wouldn't you pursue a career in academia ?

Aggressive corporate-like environment in large fields such as particle physics (e.g. "up or out" career path, power/meritocracy conflicts inside teams, political conflicts among competing teams), but without the same benefits

To get a permanent position, I'll definitely need 2-3 postdocs. The postdoc lifestyle does not appeal to me. Especially since a permanent researcher position is still unlikely at the end of the 2-3 postdocs.

too hard to find a permanent position

prospect of heavy administrative & teaching duties not really attractive

experimental particle physics somewhat in a dead end; no confidence in being able to switch fields

Pyramid scheme with career perspectives getting each year poorer and poorer: plenty of money for "disposable" HR (PhD students and postdocs), but comparably very few permanent positions [...]. Very difficult to recycle academia experience when looking for a job outside academia.

Specifically to my research sector, also my personal expectation that no major breakthrough in theoretical particle physics will occur within the next decade, at least coming from the LHC research. We can already see the thirst for (much needed) new experimental input from the increasing phenomenon of "ambulance chasing" in hep-ph papers. Due to the advance of hep-th and hep-ph with respect to hep-ex, solid research topics have already been explored at large, while what remains to be done often requires huge efforts with rapidly diminishing returns, such as increasing the perturbative accuracy of predictions for known processes."

I do not want to pursue a career in academia because it is too much uncertainties, instability and I do not want to live abroad.

Academia implies travelling a lot, which is probably not what I plan to do in the future. I would however consider a post-doc if it's possible to do so inside of Belgium (which does not seem to be likely those days).

I would not because it is a very uncertain, unstable career path that doesn't pay nearly as much as industry. 38