

ECFA

European Committee for Future Accelerators



Spain: topics for RECFA letter

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Edu/Org/Funding – Guy

- The economic crisis in 2010 hit the community very hard and it is timely to get back to the nominal funding level of 2010. We appreciate the efforts taking by the government, and it is time to consolidate the constructive dialogue between policy makers and scientists. And example it to make sure an annual budget is allocated to the appropriate level for the construction and operational costs mentioned in MoUs, and according to long term planning for large research infrastructures.
- The centers of excellence are outstanding opportunities for the community to enhance their research, and there might be opportunities to initiate the application for additional centers.
- We were shown a decreasing trend of the GDP fraction invested annually in education and very relevant for us a decreasing number of students in natural sciences and especially engineering. We hope that countering this will be high up on the agendas after the Spanish elections.
- An extensive list of people is involved today in detector R&D and construction, but next to the senior scientists, the largest fraction of researchers is hired on soft money or project based budgets. This is a major weakness in the system for which the awareness is to be raised, and adressing this feature should appear with high priority on the agendas of the dialogue with policy makers.
- National networks enhance the research strength, but the funding for these networks is at the critical level and the budget should at least be maintained.



Comp/Outreach/Stud – Nick

- Although the Spanish contribution to the WLCG is reduced from 5% to 4%, Spain remains a stronghold for TIER-1 and TIER-2 resources in the LHC context.
- The computing researchers are highly respected worldwide, and initiated several important R&D projects to deal with the computing challenges of the HL-LHC.
- Policy makers have to make sure their strong investment in computing remains above the critical threshold to have an effective and efficient contribution. The link to HPC is to be facilitated.
- We heard an impressive overview of outreach activities. The CPAN network successfully established a basis structure for a coherent approach for science outreach. It will be essential to sustain and to coordinate this structure to continue to exchange best practices and to share materials.
- It might be that PhD students do not know what might be out there for them in the non-academic world, hence an opportunity might appear to involve PhD students in the successful industry liaison.
- Last but not least, from the PhD student survey we learn that students are attracted to the job, and mostly like the job when they are in the PhD project. However, the salary is too low and in about 20% of the cases simply missing.
- The worries about elements of discrimination have to be studied and addressed, and monitored.
- To be monitored would be where PhD students go after their PhD. An alumni program might help.

Det/TechnTrans/Acc – Mogens

- Spanish groups achieve a substantial impact on the detector R&D and the physics studies for future colliders. In case of an approval of a future collider the level of support will have to be enhanced, especially to allocate fulltime researchers to the project.
- On the side of accelerator and detector R&D, we learned that in general Spanish young engineers are attracted by the challenges of our Big Science experiment, but they are difficult to keep in the current system. The career perspective of engineers is weak and should be improved to sustain technology knowledge in the HEP groups.
- Several excellent accelerator facilities are operational in Spain, and the accelerator R&D projects have a major impact in the field.
- Spain is very well organized to seek a strong link with industry and to foster these links through for example promotion activities like Spain@CERN.
- With the ILO system Spain achieves a very well-balanced industrial return in supplies and even in services. We praise the Spanish effort to make CERN attractive for industry, as well as their ambition to further strengthen the system.



NP/ApP – Stan

- The Spanish astroparticle physics community increased over the last 10 years with participation in frontline projects. The variety of astroparticle and neutrino experiments where Spain is involved in, is impressive and researchers are recognized strongly on the international level, in many cases up to the level of spokespersons, and with already 3 ERC grants.
- The Spanish underground facility Canfranc, with for example the NEXT experiment, might be strengthened by opening up the organisation for more international collaboration.
- The Spanish nuclear physics community has access to and performs experiments at most of the European nuclear physics facilities, and even beyond Europe.
- At CERN Spain is one of the leading countries in using the ISOLDE facilities at CERN with in 2018 in total 35 researchers involved in several experiments, some researches received very strong international recognition up to the level of spokesperson.

PP exp/theo – Tadeusz

- On the international level we underline the strong appreciation of Spanish researchers involved in the LHC experiments. They have a remarkable impact in the research program of the experiments, demonstrated for example with a list of important managerial roles and an impressive list of convenerships.
- There might be room to train more PhD students within the research program of the LHC experiments.
- It is outstanding to observe that a very good balance is found between more technology oriented contributions and physics analysis oriented contributions. Also in the coming years with the upgrades of ATLAS and CMS detectors in mind, reaching an adequate balance will remain a challenge.
- Spanish groups have a strong involvement in the R&D efforts for the upgrades of the ATLAS, CMS and LHCb detectors.
- There is a large and strong theory community in Spain. We hope that the community can remain equally strong in the future, and therefore deal with the ageing cohort of faculty members.
- A more flexible hiring system will have to be considered to continue to hire the most excellent HEP researchers, i.e. balance research and teaching elements in the hiring profile.