

Application nr. 86498

Nordic Particle Physics Research and eScience University Hub

Overall Grade: 5

The rating 1-7 corresponds to: 5

1 = Poor; 2 = Weak; 3 = Fair; 4 = Good; 5 = Very good; 6 = Excellent; 7 = Outstanding

Scientific quality of the consortium

This project is about fundamental research in particle physics and the use and interpretation of the data collected at the Large Hadron Collider at CERN. The team members, composed of experimentalists and theorists, are world-leaders in their domain of research. There is nice unity and complementarity among the expertise of the different team members. The work plan deals with timely and competitive questions. The proposal promotes the idea of forming clusters of physicists working coherently in specific research areas (such as the area of instrumentation). Another very interesting part of the proposal is the eScience activities linked to data exploitation; such eScience program will allow effective analyse of large datasets as part of a worldwide collaborative efforts.

The committee expressed some concerns about the truly added value of the Nordic project in the context of existing activities of same partners at CERN and it would be welcome to detail the work plan that will go beyond the activities that are already planned and funded.

Potential for innovative capacity building

There are various high-energy physics groups in the Nordic countries, but they do not have the critical mass nor the visibility they deserve. The University Hub will create synergy among these groups and will contribute to strengthen their position inside the community. An important added value is the joint force between experimentalists and phenomenologists who will be able to cover the entire chain of research from the extraction of the data to their physical interpretation and their confrontation with models. There is certainly a particularly high potential of capacity building especially in data exploitation and new directions for data analysis. But, again, it would have been nice to position the value of capacity building in this Nordic Hub versus what the same partners are already doing at CERN.

Quality of the collaboration (Clearly defined plans that specify objectives, milestones, activities, task distribution, resource needs and mobility)

The team members have a high scientific profile and have important responsibilities inside the ATLAS collaboration. There is also a nice and healthy mixture of senior people with a lot of experience with a younger generation of physicists whose careers are moving forward. The University Hub is very clearly focusing on five complementary work packages: (i) teaching, (ii) data exploitation, (iii) instrumentation, (iv) e-science and (v) future activities. These are described together with the principal objectives and all the participants are well identified. Some of main activities are about development and delivery of a number of graduate courses tailored to the specific needs of experimental particle physics graduate students in the

Nordic nations -- however, there is little discussion about new courses versus already existing courses in this field. A more innovative aspect appears to be the data exploitation; here the Hub will certainly facilitate data analyses on specific topics, enabling the institutes to play a leading role in a long term data exploitation programs, which is a real added value. The activities and task distributions are correctly addressed, as well as the resources needed. But overall, the added value of the Hub over the already on-going activities is not spelt out in a fully convincing way.

Plans for dissemination of knowledge and results from the collaboration

The Hub will make possible the production of valuable and original scientific papers, in particular thanks to the collaboration between experimentalists and phenomenologists. Another important aspect of the proposal concerns high-level education which is an essential element to sustain a research activity in the Nordic countries in a highly competitive domain and to avoid a brain drain of the talented students. A range of dissemination activities are planned aimed at a variety of audiences. There are clear plans for conferences and workshops, such as annual NorduGrid conference (70 participants, at rotating locations), twice-yearly ARC technical meetings and developer camps, system administrators tutorials and retreats (20 participants) and Common Nordic forum. The collaboration is clear and of high level, demonstrating the strength of this consortium in scientific dissemination.

Summary statement of the proposal

This is a very solid proposal in fundamental research at the fore-front of the international activities in a highly competitive domain. It is certain that the Hub will improve the already existing high quality research and teaching at the partner institutions and their scientific competitiveness. The Hub will reinforce the coherence of the activities of the various groups and ensure them an international visibility. The Hub will educate a new generation of students who will be able to actively participate to world-global projects. The proposal would however be strengthened through additional details on collaboration between partners and research activities to be conducted.