

WISP Perspectives at DESY

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The strategy concerning experiments at DESY searching for Weakly Interacting Slight Particles (WISPs) is sketched. Small and medium sized particle physics experiments at DESY provide interesting complementarity to LHC and ILC activities in several respects. Hence the DESY management is committed to support WISP searches also in future.

Particle physics activities at DESY contribute to understand the deepest structure of matter and the fundamental constituents and forces reigning the Universe. DESY has decided to concentrate its forces mainly on the high energy frontier. After the shutdown of HERA in summer 2007 (data analysis is still carried on) a large fraction of experimental particle physics at DESY concentrates on LHC related activities thereby exploiting DESY's expertise in planning, constructing and operating large complex facilities. In addition preparations towards a future International Linear Collider are ongoing.

In the recent years it became evident, that the competences and the technical infrastructure at DESY provide also opportunities for interesting small and medium sized particle physics experiments which are difficult to realize elsewhere. Most notably in this respect are the OLYMPUS (<http://web.mit.edu/olympus/>) and ALPS [1] activities. The search of ALPS at the “low energy frontier complements DESY's engagement at LHC to look for physics beyond the Standard Model at the TeV energy scale.

Besides its impact on physics the DESY management supports such activities due to several considerations:

- Small and medium scale experiments offer the opportunity to have on-site experimental particle physics activities at DESY in the LHC era.
- With experiments like ALPS DESY gets into contact to previously detached physics communities. The success of ALPS would not have been possible without the close collaboration with the laser and optics experts driving the large interferometers searching for gravitational waves. Such contacts broaden the DESY perspective and might lead to exciting new ideas also in future.
- Experiments like ALPS take place on a moderate time and budget scale. They allow young scientists to contribute to all stages of an experiment. This might be interesting for physicists not necessarily attracted by very large international collaborations.

ALPS has been a first step at DESY in this direction. It started only in 2007 and is meanwhile at the forefront of sensitivity in the search for WISPs [1]. However, due to the challenging

international competition DESY has to increase efforts in order to stay competitive. Hence the DESY management supports the planning and first steps towards an ALPS-II, leading to a Technical Design Report.

Other similar activities are the SHIPS experiment (looking for hidden photons from the sun [2]) and HIPS [3], which could tackle GeV dark forces. With the collaboration in the large LHC experiments, the IceCube detector at the south pole, the ILC preparation and a whole series of smaller projects as ALPS, HIPS, SHIPS and OLYMPUS, experimental particle physics at DESY has a broader spectrum than ever before.

References

- [1] K. Ehret, “ALPS at DESY,” these proceedings.
- [2] J. Redondo, “Hidden Photons from the Sun,” these proceedings.
- [3] S. Andreas, “Current status of sub-GeV hidden particle searches,” these proceedings.