Post-Doctoral position: Development of a PET system for a pre-clinical MRI

The Institute for Particle Physics (IPP http://www.ipp.phys.ethz.ch/) at ETH Zurich invites applications for a post-doctoral position, to work on the development of a novel Positron Emission Tomography (PET) insert for a pre-clinical Magnetic Resonance Imaging (MRI) system. The work of the successful candidate will encompass the list of duties and activities as listed below. The group is looking for outstanding applicants with the required education and skills as specified in the following.

Education:

- PhD in nuclear or particle physics or in a related field

Duties:

- Conduct simulations of PET systems including the effects of the readout system in order to evaluate PET implementation options for a pre-clinical PET-MRI system
- Guide and contribute to the development of the simulation frame-work using existing tools, GATE, GEANT4, SystemC, Litrani (and others if appropriate)
- Develop tomographic image reconstruction software using STIR, or other software packages if appropriate
- Perform tomographic image reconstruction of phantoms and small animals, assessing imaging performance parameters, like spatial resolution, sensitivity, contrasts and others which might be of interest
- Participate in and contribute to the conceptual design of the electronics systems and the computing infrastructure
- Participate in the development of the system integration aspects
- Participate in the tests of components, in the integration of the system and in the tests of the completed system
- Summarize and present the results orally, in written reports as well as in scientific publications
- Participation in meetings and supervision of students
- Actively participate in and contribute to all other aspects of the MRI-PET project not explicitly mentioned above, if appropriate or required
- Contribute to the teaching activities of the group at ETH Zurich (exercises, classes, labs)

Required skills

- Experience with Monte Carlo simulations and tomographic reconstruction, either in medical physics or in other domains related to nuclear and/or particle physics

- Computing skills as necessary with respect to the described duties
- Understanding of readout electronics and data acquisition systems
- Experience in the medical physics domain, in particular previous work in PET instrumentation, will be of advantage
- Ability to understand complex problems and significantly contribute to their solutions
- Strong motivation and willingness to acquire and improve required competences
- Ability to conduct independent research
- Strong communication skills in a multidisciplinary and multinational environment

The appointment is made for an initial period of two years and renewable annually for a period of up to 6 years, subject to mutual satisfaction. Enquiries concerning the position can be made to Prof. Günther Dissertori (dissertori@phys.ethz.ch) and Dr. Werner Lustermann (Werner.Lustermann@cern.ch).

Applications, including CV, publications list, a brief statement of research interests and two letters of recommendation, should be sent to

gabriele.kogler@cern.ch

ETH Zurich c/o CERN PH Dept.

CH-1211 Geneve 23

Applications will be considered immediately until the position is filled.