Kernfysisch Versneller Instituut

The Kernfysisch Versneller Instituut (KVI) is a leading Dutch institute in the fields of fundamental and applied atomic and subatomic physics. KVI is operated by the University of Groningen and the Dutch Research Foundation FOM.

TU Delft

The Faculty of Applied Sciences of Delft University of Technology (TU Delft) conducts fundamental, application-oriented, research in the fields of Life and Health Science & Technology, Nanoscience, Chemical Engineering, Radiation Science & Technology, and Applied Physics.

Research

Both KVI (www.kvi.nl) and the Radiation Detection & Medical Imaging (RD&M, www.rrr.tudelft.nl/rdm) section of the Faculty of Applied Sciences of TU Delft are developing new detector technology for Time-of-Flight Positron Emission Tomography (TOF-PET) and are partners in separate Dutch projects aiming to establish proton therapy centers in Groningen and Delft (www.hollandptc.nl). Proton and ion therapy are rapidly growing worldwide. Turning the physical advantages of these particles into true clinical benefits requires that the Bragg peak be aimed at the tumor with millimeter accuracy. In practice, errors occur due to range uncertainties, positioning errors, organ motion, and anatomical changes during the course of treatment. This makes it necessary to verify the 3D dose distribution, preferably in real-time. In the framework of a new collaborative investigation of the usefulness of novel TOF-PET technology for proton dose verification (PDV), we are looking for two enthusiastic and creative postdocs.

2 postdoc positions

TOF-PET for dose verification in proton therapy

For further information on the research project contact dr. Peter Dendooven (dendooven@kvi.nl, phone: +31-50-363 3615 / 3600) or dr. Dennis Schaart (d.r.schaart@tudelft.nl, phone: +31-15-278 3292 / 5244).

Job description

The successful candidates will use the GEANT4 and GATE simulation toolkits to set up an integrated Monte Carlo model including patient, proton beam, and imaging system. They will use this model to establish the feasibility of real-time PDV and propose an optimal TOF-PET system design for this purpose. Contacts with international research groups and collaborations will need to be maintained and strengthened.

Location

One postdoc will be based at KVI, University of Groningen; the other at the section RD&M of Delft University of Technology.

Conditions of Employment

The successful candidates will be employed by Foundation FOM as a postdoc for 2.5 years. Information about the terms of employment of Foundation FOM is available at www.fom.nl/personnel.
More information about the terms of employment can be obtained from Ms. A.M. van der Woude, Personnel Manager, KVI, Zernikelaan 25, 9747 AA Groningen, The Netherlands, email: pa@kvi.nl

Requirements

Applicants should have a PhD in physics or applied physics. Familiarity with GEANT4 and C++ is desired; experience in radiomolecular imaging physics and/or PET image reconstruction is an advantage. Initiative, inventiveness, and communication skills are important competences. An excellent command of the English language (speaking and writing) is required as the results of this research will be published in international peer-reviewed journals and presented at international conferences.

Applications

Applicants should send a short outline of their knowledge and experience, accompanied by curriculum vitae, and names and email addresses of three referees.
Please send your application before December 15, 2009 to the following address: Ms. A.M. van der Woude, Personnel Manager, KVI, Zernikelaan 25, 9747 AA Groningen, The Netherlands, email: pa@kvi.nl

university of groningen