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TECHNISCHE  
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## PhD position in Nuclear Physics

### **PUMA: probing the density tail of radioactive isotopes with antiprotons Method, simulations and pion tracker development**

A PhD position is open in the group of Dr. Alexandre Obertelli at the Institute of Nuclear Physics (IKP) of TU Darmstadt, Germany. The position can be filled as soon as possible.

#### *Project description:*

A PhD position is opened for the PUMA project. PUMA is a starting project (01/2018) funded by the European Research Council with the objective of probing the nuclear density tail of short-lived nuclei by use of trapped antiprotons. The project will be held at CERN eventually. The first part of PUMA consists of designing a penning trap and the corresponding detection system.

During her/his thesis, the PhD candidate will:

- (1) develop the simulation framework for the experiment and will quantitatively determine the sensitivity of PUMA to the characterisation of neutron skins and halos,
- (2) develop a solution for extra thin vacuum windows necessary for the PUMA trap,
- (3) take part in the development of the PUMA pion tracker and implement a data acquisition system and fully characterise the developed tracker.

The hardware development will be done in collaboration with European and Japanese institutes and universities. During the thesis, the candidate will participate to experiments at CERN/ISOLDE.

#### *Candidate profile:*

Only candidates holding a Master degree in physics or engineering will be considered. The thesis will take place in an international environment, with significant components of hardware developments, numerics and theory. The ideal candidate is motivated by technical developments, has knowledge of C++ and speaks English fluently. Knowledge in low-energy nuclear physics and experience with simulations would be assets.

The salary will be according to the tariff contract of the TU Darmstadt (TV-TUD). TU Darmstadt is an equal opportunity employer and we especially encourage applications from outstanding women. Disabled people with a degree of disability of at least 50% will be preferred if equally qualified.

Interested candidates should send a letter (or email) of motivation, a contact for reference, a cv to aobertelli@ikp.tu-darmstadt.de. Applications received by February 1<sup>st</sup>, 2018 will receive full consideration. Later applications will be considered if the position is not filled. The call will remain open until the position is filled.