

PhD student position in Space Research/Mass Spectrometry

The Space Research and Planetology Division of the University of Bern is seeking candidates for a PhD in physics to work on the neutral gas mass spectrometer for ESA's new Comet Interceptor mission. The position, funded by the Swiss National Science Foundation (SNSF), is nominally for 3 years with a possible 1 year extension.

Background

The project is dedicated to the investigation of comets by sensitive in situ mass spectrometry. Comets belong to the most pristine objects in our solar system. Measuring the volatiles sublimating from these objects, including a host of prebiotic molecules and their isotopes, hold important clues about the conditions during the time of formation and the early days of our Solar System. Recently, the European Space Agency (ESA) adopted Comet Interceptor (CI) as the first F class mission in its portfolio (https://www.esa.int/Science_Exploration/Space_Science/Comet_Interceptor_approved_for_construction). The University of Bern is the lead institute for the mass spectrometer MANiaC (Mass Analyzer for Neutrals in a Coma) and the science camera CoCa (Comet Camera) on the main spacecraft of CI.

Responsibilities

The PhD curriculum contains both theoretical and lab work as well as the study of comets and spacecraft instrumentation. The project focuses on the characterization of a time-of-flight mass spectrometer with pressure gauge for the CI mission. The work includes testing of the ion-optical design, ion source, detector, and characterization of the different instrument models and subunits of MANiaC. Reference and calibration measurements will be carried out in the laboratory. The PhD candidate will be part of a diverse team of engineers, technicians, and scientists, and have the opportunity to present the work at various international conferences.

Requirements and applications

The position requires a Master of Science degree in physics or a closely related field in engineering. Experience in instrumentation, lab work, and programming languages are a clear advantage. Interested applicants should send their curriculum vitae (including professional experience), a one-page motivation letter, the contact details of two reference persons, and the grades obtained at the Master level to Dr. Martin Rubin (martin.rubin@unibe.ch).

Further information

The Space Research and Planetology Division of the University of Bern is the leading planetary sciences institute in Switzerland (www.space.unibe.ch) and participates in numerous ESA and NASA missions. The Division has a long-standing tradition in space research starting from the solar wind sail placed on the Moon during the Apollo program, recent missions such as Rosetta to comet 67P/Churyumov-Gerasimenko, to future projects including ESA's JUICE mission to the Jovian moons and CI to a yet to be defined target.

The salary will be determined according to SNSF regulations. The Canton of Bern offers 23 days of vacation per year. Public holidays (e.g., Christmas, New Year, Easter, 1 August, etc.) come in addition. The Division is actively seeking to increase the number of women in physics and hence women are strongly encouraged to apply.

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