UNIVERSITÄT BERN

## PhD position at University of Bern: Laboratory Analogue for the Surface of Icy Moons

The vast majority of celestial objects in our outer solar system are bodies with icy surfaces (ice moons, Trans-Neptunian Objects, and comets). The surface of these objects directly interacts with the space environment and thus is open to in-situ or remote sensing investigation. The upcoming JUICE mission of ESA to the Galilean moons Europa, Ganymede, and Callisto will allow us to directly sample the particles ejected from the surface. However, many properties of the particle release from the surface in response to external drivers (particle irradiation, photon irradiation, and others) are still poorly known. However, these inputs are needed for surface and exosphere models which poses a problem for the interpretation of existing and future observations of icy planetary bodies.

The position is for an experimentalist to duplicate processes that are relevant for the icy surfaces of satellites in the laboratory: irradiation with ions, electrons, and UV photons of pure water ice and mixtures. The goal of this PhD position is to provide the release efficiency and the chemical composition of ejecta for the case of ions, UV photons, and electrons impacting an ice surface. Characterising the radiogenic processes in the surface resulting from the irradiations will complement the analysis. Work is within a large team at the University of Bern, and is connected to an international collaboration within the JUICE mission.

We are looking for a talented and motivated person who enjoys experimental physics. Experience with electronics, vacuum instrumentation, ice samples, and mass spectrometry would be of advantage but is not required. The PhD position is funded for 4 years. Salary is according to regulations by the Swiss National Science Foundations.

The position is available from 1 October 2022. Proficiency in spoken and written English is required, German language skills are an asset. Candidates with demonstrated experience in experimental work will be favoured. Employment is in accordance with the personnel regulations of the Canton of Bern. Please submit an application by 14 August 2022 as a single pdf file consisting of a cover letter in which you describe your motivation and qualifications for the position, a CV, list of your publications, and a list with names of three references.

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