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INTERDISCIPLINARY WORKSHOP ON HUMAN HABITATION CONCEPTS FOR INTERSTELLAR SPACE TRAVEL

Abstract

Crewed interstellar spacetravel as the biggest what-if of future human spaceflight confronts us with challenges of time, distance and life support, and raises significant human factor issues (e.g. isolation and confinement, radiation, weightlessness) which are exacerbated by mission duration. Yet, with the departure from the well-known and familiar, developing human habitation concepts for interstellar spacetravel can also serve as a way to foster creativity and out of the box thinking: the topic provides challenging problems to solve and very few exemplary projects. Additionally, the subject's high level of complexity requires the willingness to depart from traditional disciplinary territories.

The presented work will give an insight on the lessons learned from an interdisciplinary workshop for PhD and master students (aerospace engineering, space architecture, biology, medicine, physics, etc.) from European universities aiming at stimulating the student's creativity and generating ideas for fully self-sustaining space habitats that have complex ecosystems, simulated gravity, and could potentially preserve human life in Outer Space for several generations.

It provides insight with regard to the potential benefits of interdisciplinary approaches at the very beginning of design processes, problems that might arise when working on all scales from the "overall picture" to small details, and an evaluation of the innovations suggested.