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Special Session on

STRUCTURAL DESIGN FOR EXTRA-TERRESTRIAL NATURAL HAZARDS

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Over recent decades, there has been significant investment -in the order of USD billions- by both governmental and private agencies, for pursuing space exploration and developing the first space hubs and habitats in extra-terrestrial environments. In view of these ambitious plans, there is a vision and a need for civil engineering to expand to space applications and extra-terrestrial hazards.

In support of these plans, the aim is to design and build adobe shielding structures in order to protect critical assets (such as robots, fuel tanks and power stations) and future inflatable structures (such as living quarters) from extreme, extra-terrestrial environments.

There have been much recent and ongoing research on: 1) the mechanical properties of regolith (simulants); 2) the In-situ Resource Utilisation (ISRU) framework; and 3) the advances in 3D printing for extra-terrestrial construction. We believe it is time to combine the breakthroughs made in these fields with structural design strategies developed for engineered structures on Earth, in order to define a multidisciplinary approach towards designing and building resilient structures in low-gravity, subject to extra-terrestrial dynamic environmental actions.

This special session aspires to focus on advances in extra-terrestrial structural design covering different aspects such as:

- ENVIRONMENT (natural hazards)
- STRUCTURES
- MATERIALS
- APPLICATIONS (ISRU, robotics, construction)

Manuscript Submission Deadline : 30 January 2022

Contributions to the Special Session should only be submitted online at https://iconhic.com/2021/authors-area/#submissions. When filling the form don't forget to select the name of the Special Session in the dropdown menu 'Abstract Topic'.