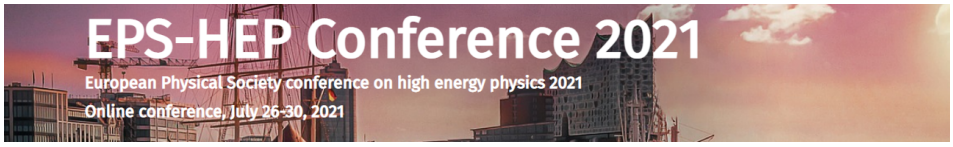

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HERD: the space-borne High Energy cosmic-Radiation Detection facility

The China's Space Station, currently under construction, will host the next-generation detector for direct measurements of cosmic rays: HERD. The core of HERD is a thick (3 nuclear interaction lengths and 55 radiation lengths) 3D calorimeter made of about 7500 LYSO cubes. On the top and the four sensitive sides, from outside to the calorimeter, there are a silicon charge detector, a plastic scintillator detector and a scintillating fiber tracker. Thanks to its excellent energy resolution, an acceptance 10 times larger than the present generation missions ($\sim$ 1 m^2 sr), and long lifetime (> 10 years), HERD will be able to perform precise measurements of cosmic ray energy flux and composition towards the "knee"region ($\sim$ 1 PeV). The primary objectives of HERD are the indirect search for dark matter particles and the observation of high energy gamma rays. The HERD science perspectives, design and expected performances in terms of energy sensitivity, spatial and charge resolutions will be presented in this contribution.

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Collaboration / Activity

HERD Collaboration

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