

# FIT: the scintillating fiber tracker of the HERD space mission

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The High Energy cosmic-Radiation Detection (HERD) facility is a space payload proposed to be installed onboard the China's Space Station (CSS). The aim of HERD is the direct detection of cosmic rays towards the "knee" of the spectrum ( $\sim 1$  PeV) and the monitoring of the gamma ray sky up to 1 TeV. The HERD core is a calorimeter capable of accepting particles incident on its top and four lateral sides, each equipped with a sector of the scintillating fiber tracker: FIT. The top sector hosts 5 tracking planes while a side sector hosts 9 tracking planes. Each tracking plane is made of 16 modules. The module, composed of a fiber mat and 3 arrays of SiPMs, is the elementary brick of FIT. Several FIT modules have been built and tested with particle beams at CERN. A FIT prototype, made of two partially instrumented tracking planes, has been assembled and sent through vibrational and thermal-vacuum space qualification tests. The results of all the tests as well as the detailed design of FIT will be presented in this contribution.

## Keywords

tracker; scintillating fiber; SiPM; cosmic ray; gamma ray

## Collaboration

### other Collaboration

HERD

## Subcategory

Experimental Methods & Instrumentation

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