

# : Multi-channel YSO scintillator crystals for the application of low energy X-rays detection in space

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We developed an X-ray detector which consisted of 36-multi-channel Yttrium Oxyorthosilicate (Y<sub>2</sub>SiO<sub>5</sub>:Ce,YSO) scintillator crystals and 36-Multi-Anode PhotoMultiplier Tubes(MAPMTs). Both YSO scintillator crystal and MAPMT have 64 channels in an 8×8 array. Therefore the X-ray detector has 2304 channels in total. The reason for choosing YSO scintillator crystal is that it has several advantages in X-ray detection compared to other scintillators. First, it has no intrinsic backgrounds which are crucial to detecting low energy X-rays. Next, it has high light yield and fast decay time. We applied the YSO scintillator crystal X-ray detector to the space mission, which is called Ultra-Fast Flash Observatory(UFFO)/*Lomonosov*, launched into space on Apr. 2016. We confirmed that its stable operation in space to detect X-rays. Here, we will present its design, fabrication, and performances on the detection of low energy X-rays.

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