

Prospect of a new generation telescope with superconducting tunnel junction detector

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In astronomy and solar-terrestrial physics, interesting results are obtained by the observation coupled with visible, UV and X-ray. It is clear that the comprehensive wide energy range observation is very important.

Superconducting tunnel junction (STJ) has the high energy resolution and the high photon counting rate. The spectrum capability of STJ is the wide energy range, from visible to X-ray. STJ is good advantageous to observation of the faint objects with which the photon number is limited like astronomical objects.

We will propose a conceptual wide band telescope (WBT) design for the detection from visible to X-ray energy region. WBT has a grazing incidence telescope (GIT) for X-ray region, a normal incidence telescope (NIT) for visible to EUV region and STJ. NIT is arranged to the dead-space of inner GIT. Mirrors of NIT are coated multilayer (supermirror) for the EUV region. An energy dispersive imaging detector is arranged in co-focal position.

We will report and discuss the possibility of wide energy range observation telescope.