W04a

A SPICA far-IR imaging spectrometer SAFARI – current design and its expected performance

○土井 靖生 (東大総文), Peter R. Roelfsema, Frank P. Helmich (SRON), Bruce S. Swinyard (RAL), Javier Goicoechea (CAB) and the SAFARI consortium

We present an outline of a study that is being undertaken by a consortium of European, Canadian and Japanese institutes for a far-IR instrument for the proposed JAXA-led Japanese-ESA mission, SPICA.

SAFARI (SpicA FAR-infrared Instrument) is an imaging Fóurier Transform Spectrometer designed to provide continuous coverage in photometry and spectroscopy from 34 to 210 μm, with a field of view of $2' \times 2'$ and spectral resolution modes $R = 2000$ (at 100 μm), $R \sim$ few hundred and $20 < R < 50$. The spectral sensitivity is required to be $\sim 3 \times 10^{-19}$ Wm^{-2} at 48 μm (5σ, 1 hour). TES superconductor detector has been chosen to be onboard and is now under development to meet the above mentioned requirements.

We present the expected performance of the detector and the best estimate scientific capability of SAFARI that is drown from the detector performance. A wide variety of science cases are to be covered by SAFARI, including galaxy evolution, planetary system formation and tracing the history of interstellar matter.

We highlight these cases and describe the scientific potential of SAFARI.