

W65b **SAFARI: A far-IR imaging spectrometer for SPICA**

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

SPICA is a JAXA proposed mission to be launched in  $\sim 2018$  to conduct innovative infrared observations with continuous spectrum coverage of mid- and far-infrared waveband from 5  $\mu\text{m}$  to 210  $\mu\text{m}$  as well as high spatial resolution and high sensitivity owing to its large aperture (3m-class) and mechanically cooled ( $< 6\text{K}$ ) primary mirror. SPICA is also proposed to ESA as one of a small number of missions that are being under selection to go to the next stage of ESA's Cosmic Vision process.

SAFARI – SpicA FAR-infrared Instrument – is an imaging spectrometer with both spectral and photometric capabilities covering the  $\sim 34\text{--}210$   $\mu\text{m}$  waveband.

We highlight the core science justification for the instrument, a possible conceptual design; its predicted performance and the technical challenges that need to be met in order to realise the full potential of the instrument.