Call for a Letter of Interest for the construction of a wide field bolometer camera

IRAM will issue within the next 4 months a call for proposals to build a wide field bolometer camera operating at millimeter wavelengths to be installed at the IRAM 30-meter telescope not later than 2011.
To prepare a call for proposals, we ask for Letters of Interest from groups who would like to participate in this project. It will offer opportunities in:

1) Cryogenics
2) Detector arrays
3) Cryogenic and room temperature electronics
4) Quasi-optics including dichroic elements
5) Data acquisition & software

The project will be organized on the basis of an effort-proportional grant of guaranteed observing time with the bolometer camera after its construction. IRAM foresees a base investment of 500,000 Euros over 3 years for this project.

Formal letters of interest should be addressed to Pierre Cox, Director of IRAM, by June 22, 2007. The letter should include a brief description of the available expertise and should mention which of the above fields will be envisaged for collaboration.

The following preliminary specifications will serve as basis for further discussion:

- A 2 Band design with optimal use of atmospheric windows: **2.05 mm (146 GHz)** and **1.25 mm (240 GHz)** arrays in a common cryostat. The filters should have widths of 40 GHz for the 146 GHz band and 90 GHz for the 240 GHz band. The possibility to cover other bands is left open.
- **A 10-arcmin field of view** with Nyquist sampling for both wavelengths. This corresponds to **15 kpix at 1.25mm** and **5.7 kpix at 2.05mm** for a circular filling of the field.
- A closed cycle cryostat.
- A power load per pixel (HWHM diffraction blob) from background (atmosphere, ground and optical chain): from 6 pW to 12 pW (weather dependent) for 146 GHz band; from 17 pW to 40 pW for 240 GHz band.
- A maximum NEP per bolometer (1/3rd un-polarized background photon noise): **1.3×10^{-17} W/Hz$^{1/2}$ at 146 GHz** and **2.8×10^{-17} W/Hz$^{1/2}$ at 240 GHz** (un-polarized observations).
- Sensitivities on the sky (under good weather conditions): NET $\cong$ 320 μK·s$^{1/2}$ and NEFD = 0.2 mJy·s$^{1/2}$ for each band, corresponding to the detection of a 1mJy point source in 1 min (146 GHz band) and 2 min (240 GHz band) at 3σ above noise, or **0.12 mJy in one hour for the 146 GHz band** and **0.21 mJy in one hour for the 240 GHz band**.
- A polarimeter option could be considered as a specific sub-project.

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