A Parallel/Series Array of Cold-Electron Bolometers with
SIN Tunnel Junctions for Cosmology Instruments

Leonid Kuzmin
Chalmers University of Technology, S-41296 Gothenburg, Sweden,
E-mail: leonid.kuzmin@mc2.chalmers.se

Abstract - A novel concept of the parallel/series array of Cold-Electron Bolometers (CEB) with
Superconductor-Insulator-Normal (SIN) Tunnel Junctions has been proposed for matching with
JFET readout. The current-biased CEBs are connected in series for DC and in parallel for HF
signal. A signal is concentrated to the absorber through the capacitance of tunnel junctions and
additional capacitance for coupling of superconducting islands. Due to dividing power between
CEBs in the array and increasing responsivity, the noise matching could be effectively optimized
and the photon Noise Equivalent Power could be easily achieved at 300 mK with a room
temperature JFET readout.

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