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## Benefits and limitations of bolometer Joule ramping

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Initially looking for a simple method to precisely characterise long thermal time constants (tails) in bolometric chain time responses, we developed a model and an experiment on a simple NTD Germanium sub-millimetric detector. We since realised that Joule ramping, adding a generated triangle wave through a small capacitor to temporarily create a small step in the constant bias current, gives direct access to the electron-phonon coupling properties of the sensor. However, the time constants arising from Joule power variations are different from those extracted from charged particle glitches or optical modulation coupled to the phonon temperature. We propose Joule ramping as a possible tool for parameterising the electron-phonon decoupling of a bolometer over a range of bias and temperature conditions.

### Less than 5 years of experience since completion of Ph.D

Y

### Student (Ph.D., M.Sc. or B.Sc.)

N

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