Cryogenic operation of GaAs based multiplier chains

Alain Maestrini, David Pukala, Jean Bruston, Goutam Chattopadhyay, Erich Schlecht,
Frank Maiwald, Suzanne Martin, and Imran Mehdi
Caltech – Jet Propulsion Laboratory
MS 168-314
4800 Oak Grove dr.
Pasadena, CA 91109
818-354-45892 - maestrin@merlin.jpl.nasa.gov

The FIRST/HIFI mission allows for the multiplier chains to be cooled to 100 K in order to improve the available output power. This presentation will discuss the implication of cooling on GaAs based Schottky diode varactors for flight applications. A diode model that includes cooling effects has been developed and will be discussed along with its impact on multiplier design. Preliminary measurements at 100 K done on individual multipliers at 200 and 400 GHz along with multiplier chains to 400 GHz will be presented.

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