# Abstracts

## Low-frequency noise properties of SiGe HBT's and application to ultra-low phase-noise oscillators

*B. Van Haaren, M. Regis, O. Llopis, L. Escotte, A. Gruhle, C. Mahner, R. Plana and J. Graffeuil. "Low-frequency noise properties of SiGe HBT's and application to ultra-low phase-noise oscillators." 1998 Transactions on Microwave Theory and Techniques 46.5 (May 1998, Part II [T-MTT] (Special Issue on Microwave Circuits on Silicon Substrates)): 647-652.*

This paper presents an extensive electrical characterization of Si/SiGe/Si heterojunction bipolar transistors (HBT's) grown by molecular beam epitaxy (MBE). These devices are designed for microwave and millimeter-wave applications since they present a maximum oscillation frequency in the 40-GHz range. The processing technology, featuring a high-quality oxide passivation, results in ideal Gummel plots and an input noise corner frequency of 250 Hz at lowest. A dielectric resonator oscillator (DRO) at 4.7 GHz has, therefore, been realized. The measured phase-noise level of this oscillator is below -135 dBc/Hz at 10-kHz offset frequency, which is at least 10 dB better than the best FET or HBT state-of-the-art DRO's.

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