

## **Nanoelectronic Characterization using Microwave Near-Field Microscopy**

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Microwave near-field microscopy provides a unique scanning probe-based tool to address spatial variations in carrier density in semiconductors with nanometer spatial resolution. The capability to locally measure and image carriers in semiconducting devices *in operando* provides a powerful tool in the development and optimization of nanoscale electronic and optoelectronic devices. I will begin by providing an overview of microwave near-field microscopy including operational principles and the nature of the contrast obtained from semiconducting materials. I then discuss recent applications of the technique to nanoscale devices. In particular I will focus on the applications to novel systems, including 2D transition metal dichalcogenides, 1D nanowires, and other low-dimensional and van der Waals materials.