

# Detection of Structure and Electrical Level of Point Defects in Semi-Insulating SiC

M. E. Zvanut, PI, Department of Physics  
University of Alabama at Birmingham

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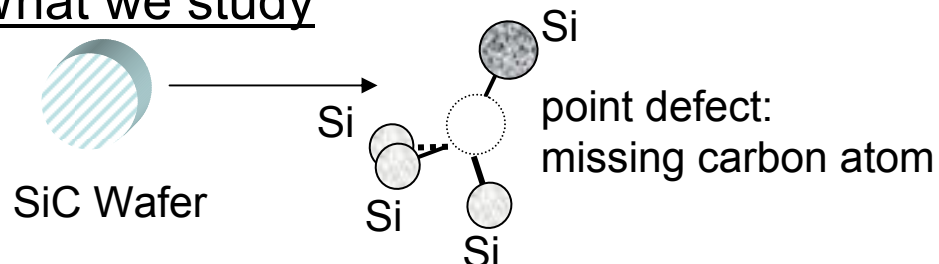
- **High purity SiC** is needed for applications requiring fast response and high resistivity
- There exist both good and bad defects in SiC:

**Good** - provide necessary charge compensation -> high resistivity

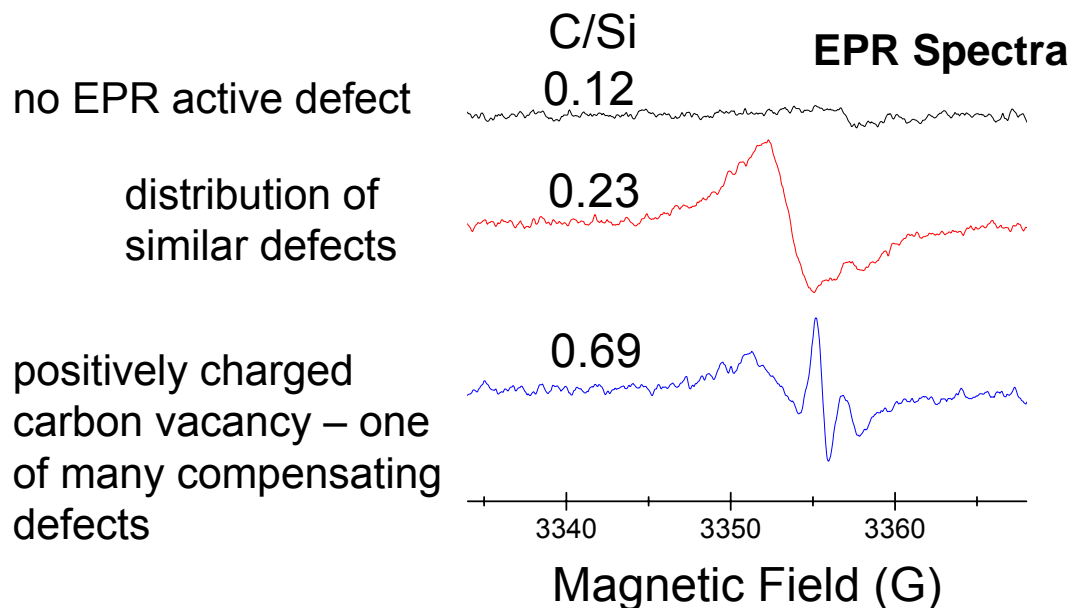
**Bad** - cause excess conduction and/or carrier trapping -> slow response

- **defect detection technique:** Electron Paramagnetic Resonance – senses part per million defect concentrations

What we study



- defects in SiC grown by halide chemical vapor deposition
- **Our finding:** defect type depends on carbon-silicon ratio



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Undergraduate gets research experience including:

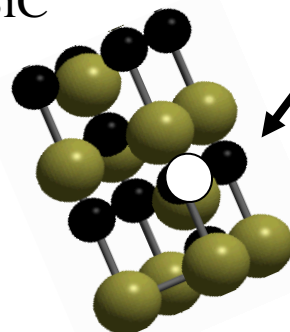
- basic optical techniques
- importance of defects in materials
- importance of growth environment

Undergraduate gets professional training:

- helping/teaching fellow summer UG students
- providing demonstrations for high school students

Point defect in SiC

SiC



Point defect

EPR spectrometer

