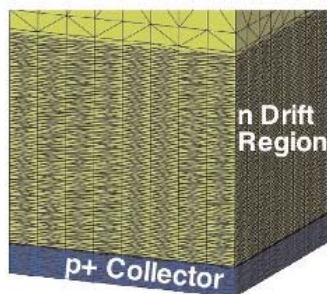
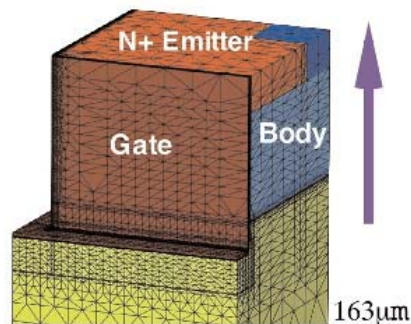


# EECS 598 Power Semiconductor Devices

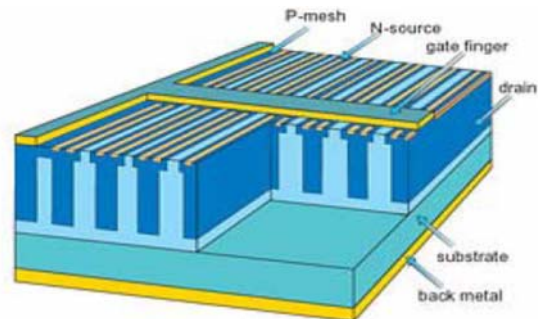
## Fall 2018

Power devices are at the heart of all modern electronics, from the power grid and renewable energy to hybrid/electric vehicles, trains, space exploration, and industrial and consumer electronics. This course will cover design and operating principles of semiconductor devices for discrete and integrated power electronics. We will discuss the power MOSFET, IGBT, HEMT, thyristors, Schottky and PIN diodes, as well as emerging device architectures. We will study the semiconductor materials, device fabrication and packaging required for power devices, including Si, GaN, SiC, and Ga<sub>2</sub>O<sub>3</sub>. Students will learn numerical device modeling using commercial software

(Synopsys Sentaurus and Silvaco Atlas), and will do a final group presentation on a topic of their choice. *This course is pre-approved as a Flexible Technical Elective for undergraduate EE majors and an EECS elective for CE majors. Within the ECE graduate program, this course has been pre-approved as a Major Course for Solid State/Nano and as category "E" for VLSI/IC and Power and Energy.*



SiC IGBT simulation



Merged PIN-Schottky Diode

Course: F18 EECS 598 Section 002  
Prerequisites: (EECS 320 or equivalent) or graduate standing  
Lectures: Monday & Wednesday 1:30-3:00pm  
Instructor: Prof. Becky Peterson, EECS, [blpeters@umich.edu](mailto:blpeters@umich.edu)