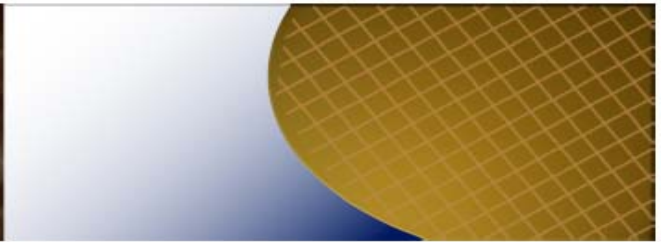


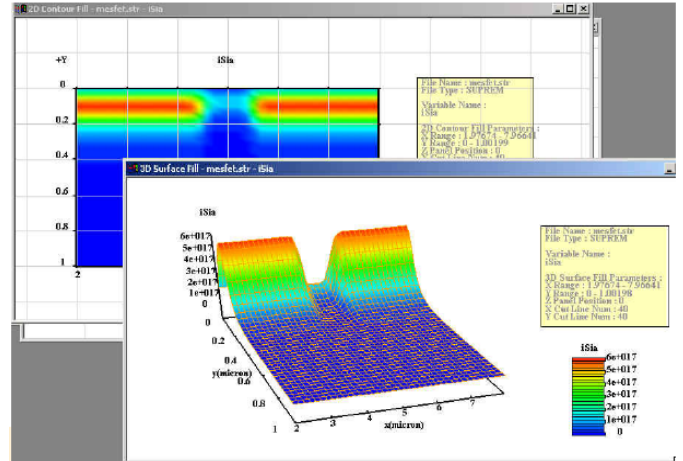
CSUPREM

3D Process Simulator for MEMS and IC Devices



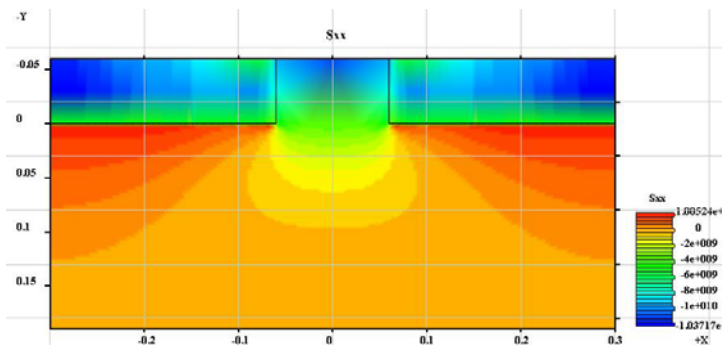
CSuprem is a powerful and accurate 2D/3D process simulation tool for silicon and GaAs.

- Extension of Stanford code to 3D.
- Non-uniform temperature annealing.
- Data interface to Crosslight/Apsys simulator.
- Local heating profile imported from APSYS.
- Interface to Monte-Carlo implant simulator.
- Capability of CSuprem extended to compound devices:
 1. Deposition/Etching model adapted to model complex electrode design of light-emitting diode (LED).
 2. Strain/stress analysis applied to MQW GaN LED growth.



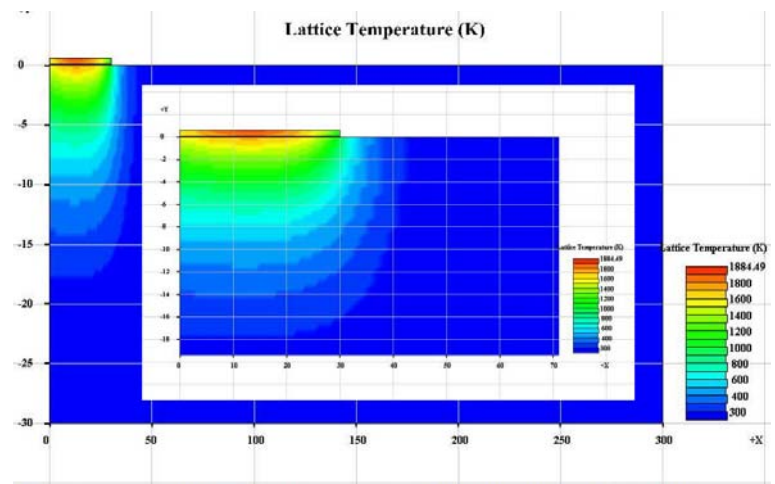
CSuprem Capabilities:

- Ion Implantation
 - Physical model
 - Damage model
 - Tilt model
- Anisotropic and Sacrificial Etching
- Deposition
- Diffusion
 - Point defect based
 - Paired and unpaired diffusion of point defects models
 - Transient enhanced diffusion (TED) for damage and clustering
- Rapid Thermal Anneal
- Oxidation
 - Dry oxidation
 - Wet oxidation
 - Effect of HCl, Orientation on oxidation rate
 - Effect of doping level and pressure on oxidation rate



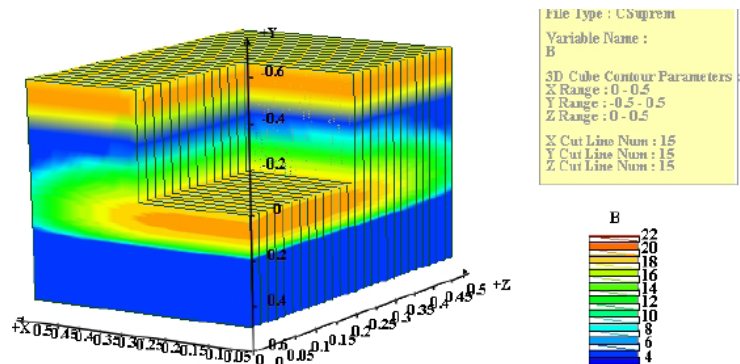
SiGe Stress Simulation

GaAs MESFET

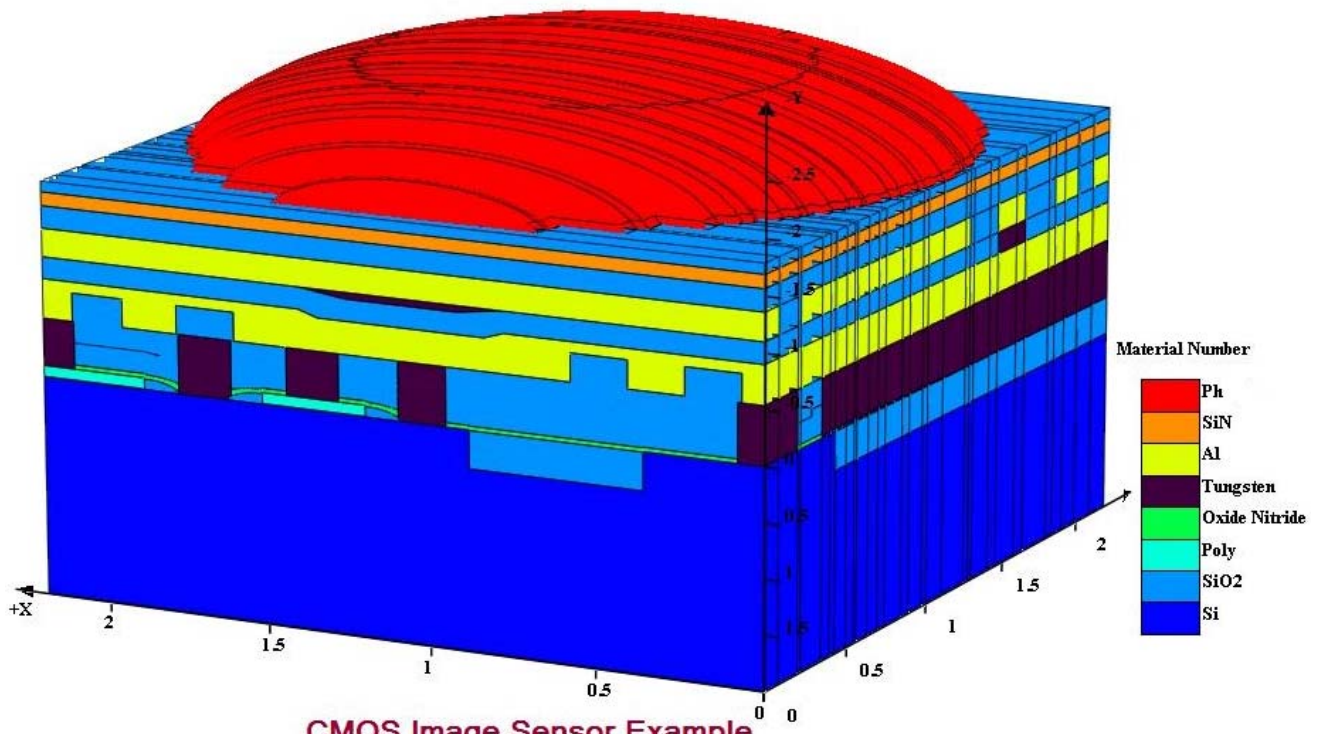


Firing wavelength 1064 nm; laser power 2.25×10^{11} W/m²; firing time 480 ns

Non-uniform temperature profile generated by laser beam pulse imported from Crosslight APSYS for annealing.

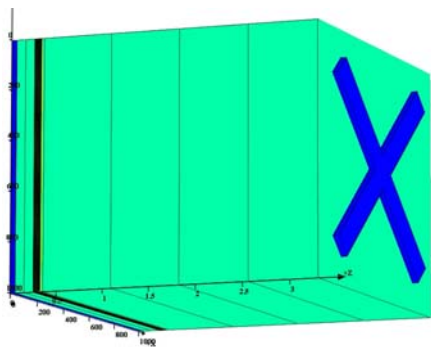


3D Mask Effects on Boron Implant Distribution

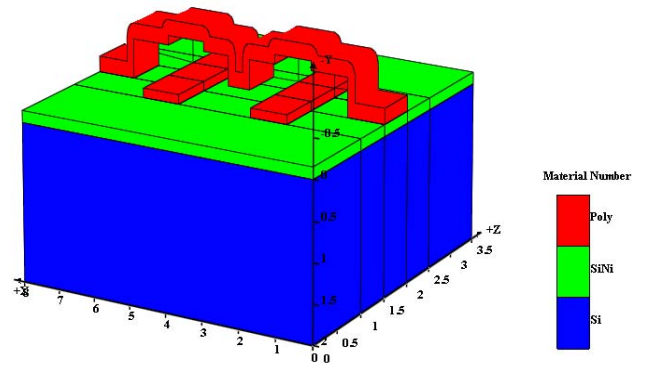
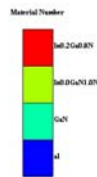


CMOS Image Sensor Example

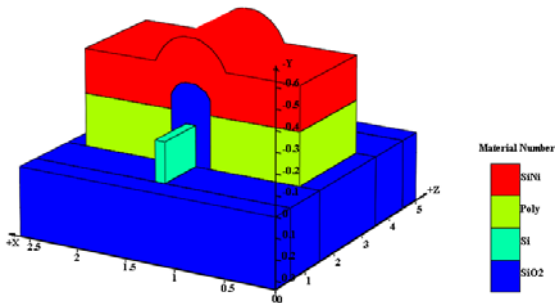
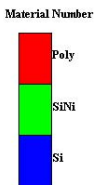
3D CMOS image sensor simulated from process to FDTD-optics and electrical response.



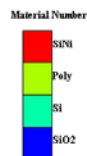
GaN LED set up by CSuprem



3D RF-MEMS Example



FINFET Example



CROSLIGHT
Software Inc.

URL: <http://www.crosslight.com>
e-mail: info@crosslight.com