

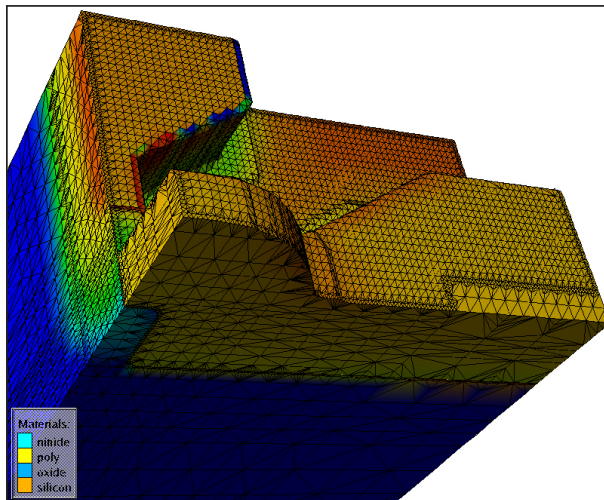
TCAD Services

Silvaco's TCAD modeling service provides a solution for customers who have unique semiconductor device modeling requirements but do not have the time or resources to operate TCAD software in-house. Using TCAD modeling service provides access to Silvaco's expertise in semiconductor physics and TCAD software operation to provide a complete, fast, and accurate turnkey solution.

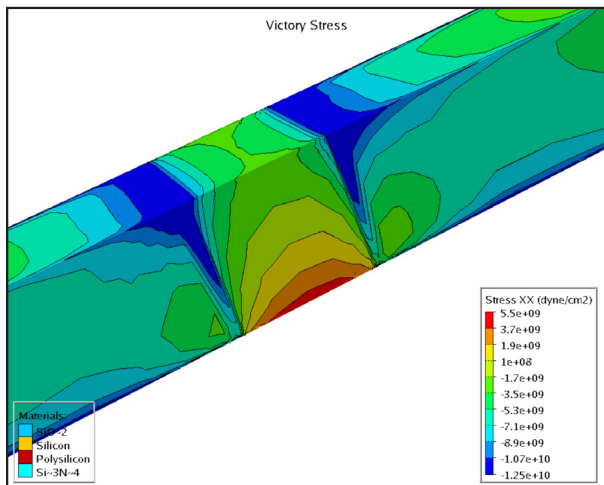
Typical Applications

Applications include but are not limited to:

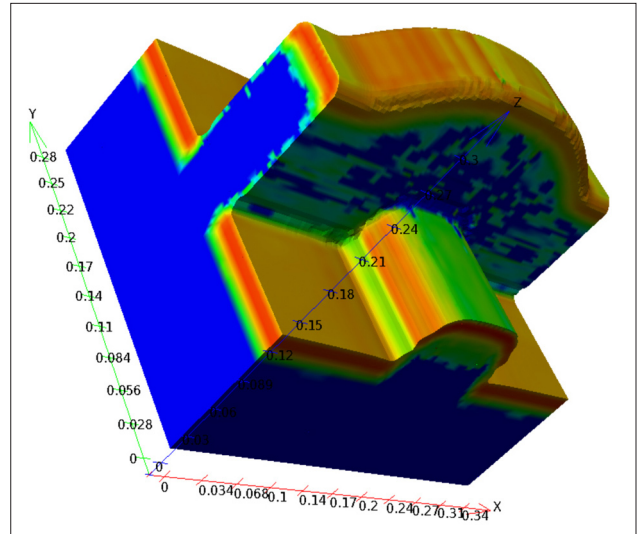
- Stress simulation
- Optical ray tracings for solar cells and CCDs
- Optical simulations
- Modeled effects include self-heating, thermal gradients and multiple background temperatures
- Resolving process and device patent disputes



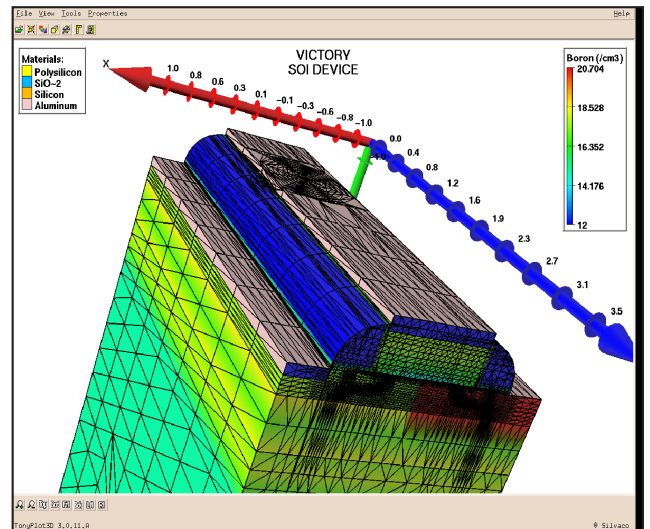
Boron distribution in a complex structure after analytical implant and Fermi diffusion.



3D stress contour profiles under tensile stress from nitride capping layer in FinFET device along (100) channel.



Arsenic LDD implant in a FinFET structure.



SOI device showing cylindrical meshing for the SEU strike.

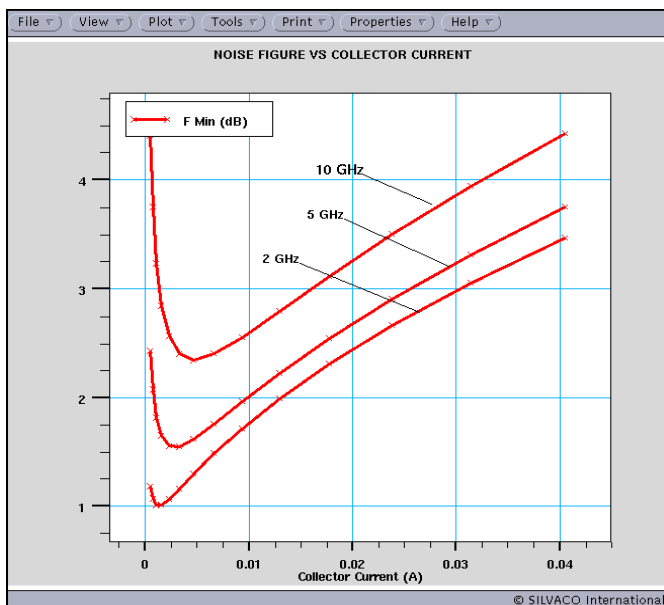
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Deliverables

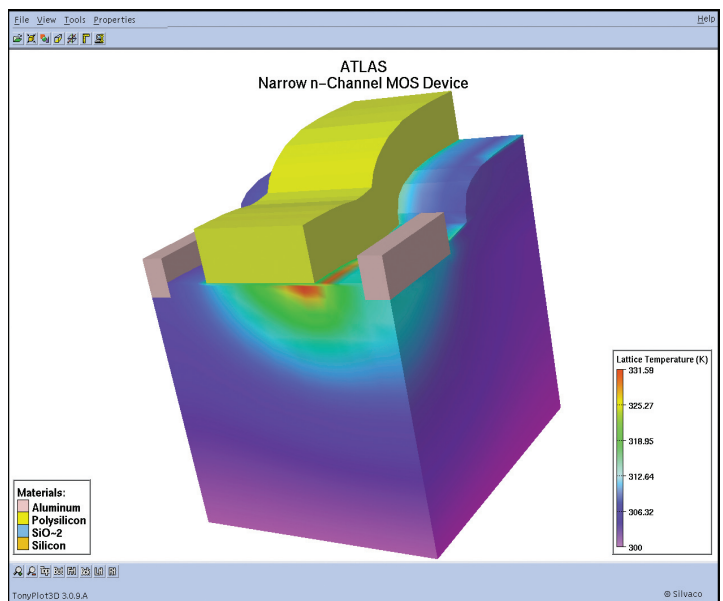
Deliverables include but are not limited to graphical output (plots of structures and behaviors), structures (TCAD device files and meshes) and device characteristics (electrical, thermal, and/or optical). Deliverables include a clear, concise report of the service work performed and the main results of the service. The deliverables are clearly specified with customer approval before work begins.

The graphical results can be delivered in one of two ways:

1. Customer receives results files and one license of Silvaco's viewer/plotter tool. This delivery method best suits consultants or semiconductor companies who are familiar with semiconductor results and know what they want to display in plots. This method provides flexibility--allowing customers to show close-ups, electrical characteristics in certain ranges and customized graphical headings.
2. Customer receives final result plots printed by Silvaco. This delivery method suits customers who are not familiar with in-depth semiconductor theory and TCAD tool operation (e.g. lawyers and para-legals in patent disputes) who simply need to show certain physical phenomenon.



Minimum noise figure versus collector current for the poly SiGe HBT at three frequencies of interest for wireless applications-2, 5 and 10 GHz.



This figure shows the lattice temperature in a narrow channel NMOS transistor to calculate the self-heating effects in the device under bias.

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