

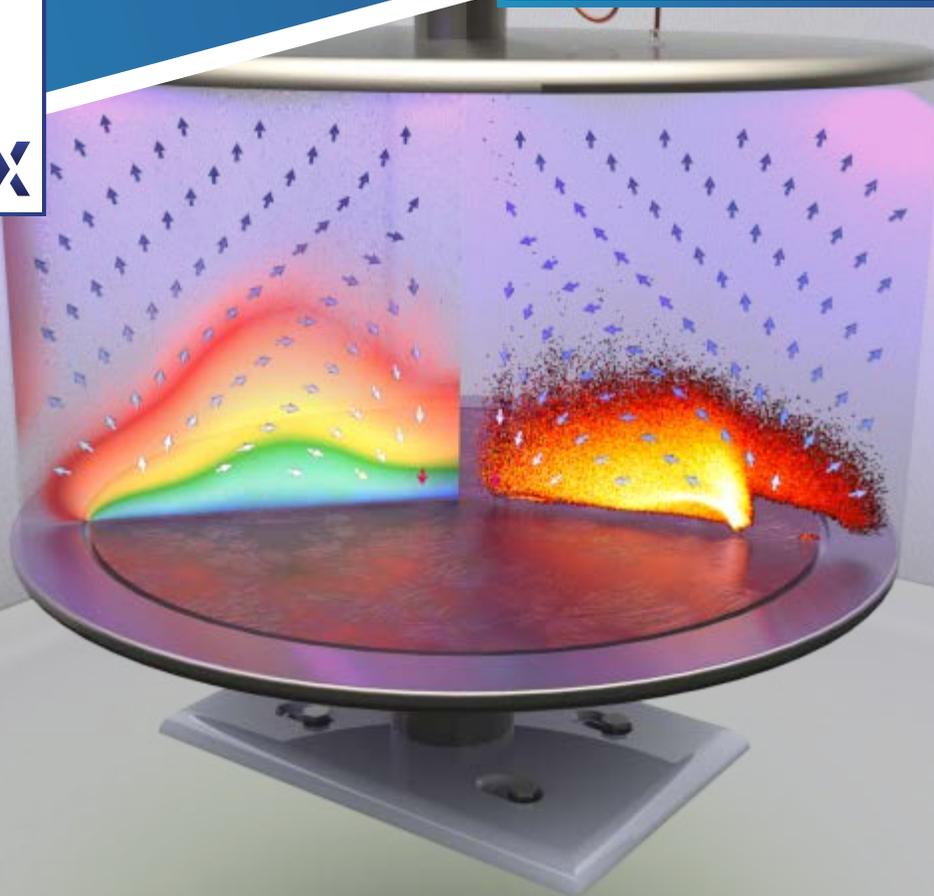
*Simultaneously simulate kinetic and collisional effects in plasmas.*

## State-of-the-art Kinetic Plasma Modeling

An ever-expanding suite of features ensures that your simulations will remain at the cutting edge.

*"A substantial amount of the value of the software was the support we received and the help setting up the ion source models. This has made VSim really useful for our research."*

—Bruce Marsh, CERN

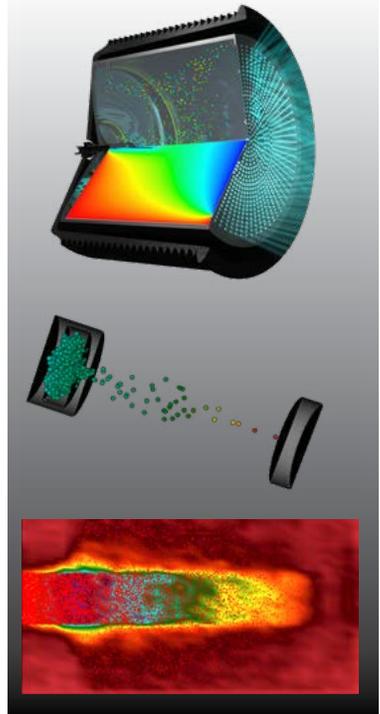
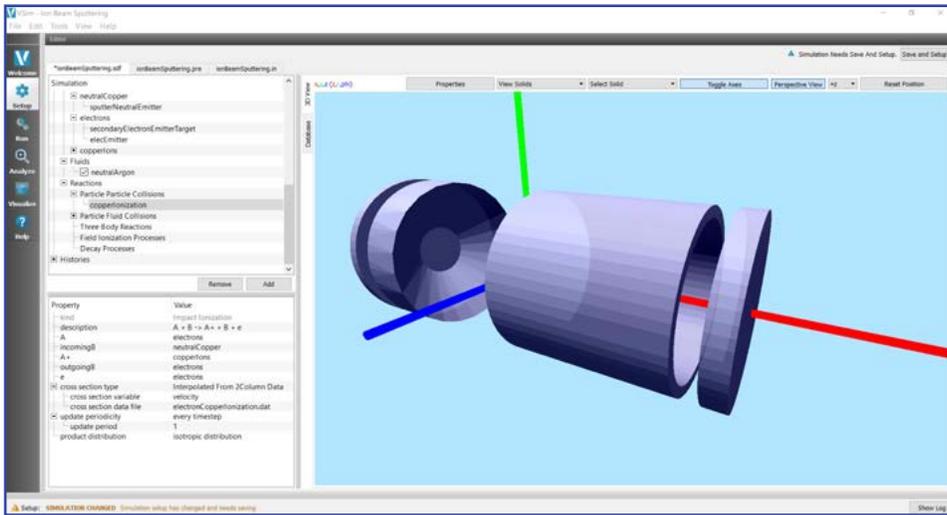


VSim for Plasma Discharges (VSimPD) explicitly tracks kinetic particle species in arbitrary-pressure background gases. Perform fast, efficient field solves in up to 3 dimensions with self-consistent particle evolution. Include secondary electron emission, sputtering, and particle-particle/particle-fluid interactions to faithfully model particle dynamics. Add feedback to simulate external circuitry.

Use VSimPD to simulate sheath formation in a plasma processing device, ion extraction from an ion source, evolutions of non-Maxwellian particle distributions, surface charging of equipment in a plasma environment, and much more.

### VSimPD Applications

- » Cleaning    » Ion Sources/Ion Extraction    » Capacitively Coupled Plasmas    » Implantation    » Coating/Deposition
- » Etching    » Beam Optics/Transport    » Dielectric Barrier Discharges    » Ion Thrusters    » DC & RF Sputtering



Right top: Stationary Plasma Thruster-100 kinetically tracks electrons, xenon ions and sputtered hBN wall materials; Right center: Ion Extraction from Penning Ion Source; Right: Electrostatic transport of an H-beam in a background gas of H2.

**Upgrading** Easily upgrade to other packages to get all the physics functionality you need. Combine VSIMPD with VSIM for Plasma Acceleration to model controlled dispersion and use a moving window, or add VSIM for Microwave Devices to include advanced electromagnetic boundary conditions and specialized electron emission models.

**Consulting Services** Tech-X offers consulting and training services for all its simulation software. In addition to the support that comes with every purchase of a VSIM product, we have experts ready to help you use VSIM to its full extent possible to solve your most challenging problems.

VSIMPD Features		Particle Reactions
» 2D cylindrical coordinates	» 1D, 2D, 3D Cartesian coordinates	» Impact Ionization
» Static background gas	» Euler fluid	» Electron Ionization
» Sputtering	» Electron and ion induced secondary electron emission	» Binary (In)Elastic
» Prescribed emission	» Dynamic particle weight management	» Electron Scatter
» Circuit equations	» Feedback Control	» Charge Exchange
» Dey-Mitra cut cells	» Absorbing particle boundary conditions	» Three Body Recombination
» Partially transparent particle absorbers	» Particle accumulating boundary conditions	» Field Ionization
» Reflecting particle boundary conditions	» Spatially varying grid	» Binary Reaction
		» Decay
		» And many more....



### ABOUT TECH-X

TECH-X is committed to technical excellence and innovation. We combine academic research with a commercial software company sensibility to deliver high quality, cutting-edge software that takes advantage of the latest hardware.

### CONTACT US

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