VSim for Microwave Devices

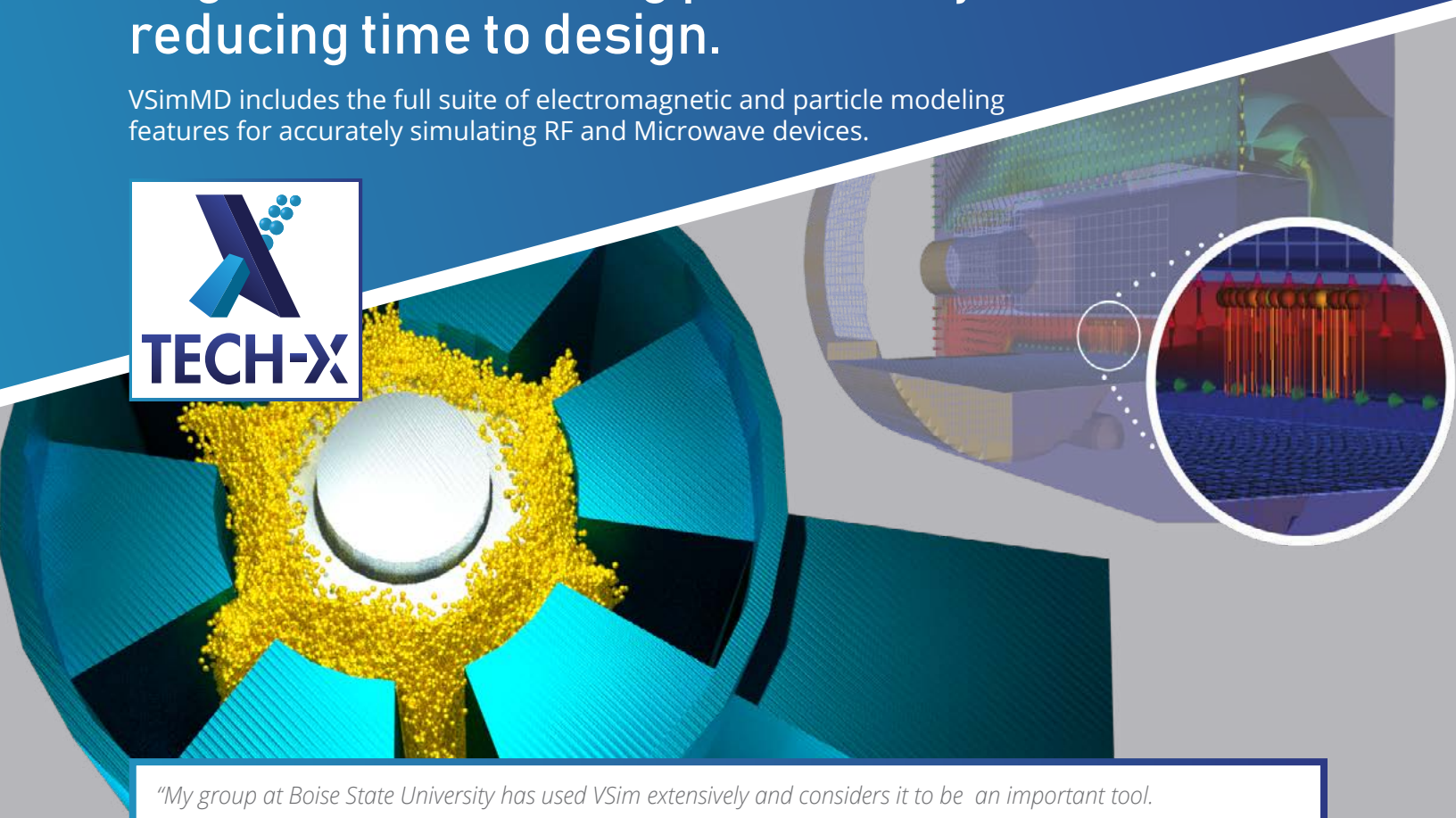
VSimMD

Simulate electron beams with primary and secondary electron emission.

The perfect tool for RF and Microwave Engineers, increasing productivity and reducing time to design.

VSimMD includes the full suite of electromagnetic and particle modeling features for accurately simulating RF and Microwave devices.

TECH-X



"My group at Boise State University has used VSim extensively and considers it to be an important tool.

In our recent publication (doi: 10.1109/TPS.2018.2844732), we validated VSim by comparing the simulation with experimental results from a crossed-field amplifier, and then used the simulation to study the characteristics of the device with a proposed distributed cathode.

I recommend VSim for anyone designing or studying vacuum electronics devices."

—Prof. Jim Browning, Chair, Electrical & Computer Engineering Boise State University

Model specific devices or individual components:

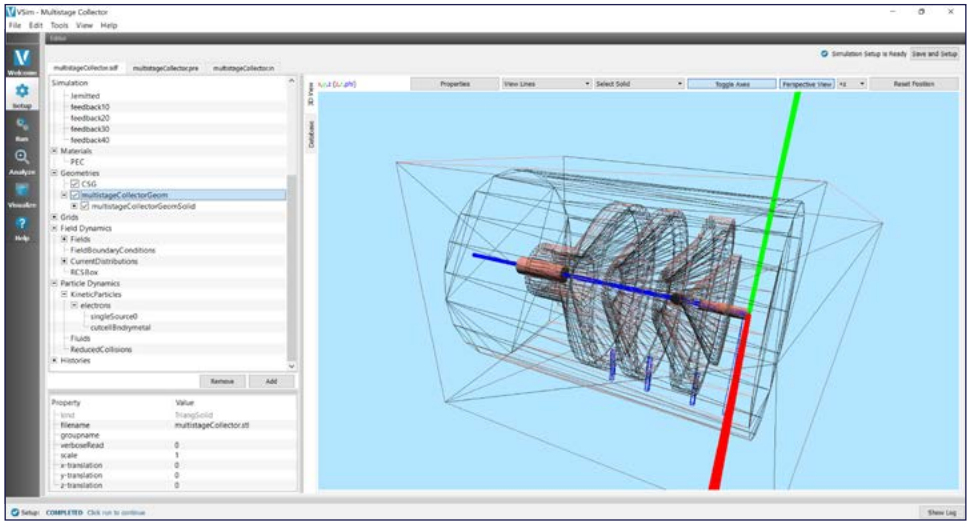
- Traveling Wave Tubes
- Striplines
- Magnetrons
- Gyrotrons
- Electron guns
- Collectors
- Klystrons

Perfect your design with performance diagnostics:

- Multipacting
- Operating Modes
- Power
- S-parameters
- Voltage
- Quality & Geometric Factors
- Electron Tracking
- Electron Current
- Electron Phase-Space

VSim for Microwave Devices (VSimMD) includes the full suite of electromagnetic and particle modeling features needed for accurately simulating RF and Microwave devices.

Simulate electron beams with primary and secondary electron emission. Primary emission mechanisms include Child-Langmuir, Fowler-Nordheim, Richardson-Dushman, and user specified. For secondary electron emission, Use the pre-installed SEY models or implement your own. Simulate multipacting at multiple power levels in just one run with field-scaled electrons.

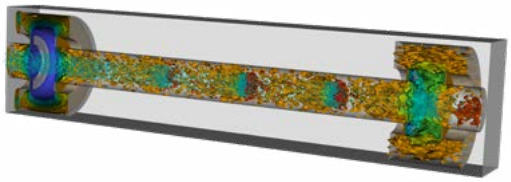


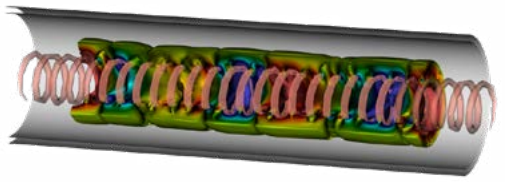
Upgrading VSimMD

Upgrade VSimMD with VSimEM to add farfield diagnostics and 2nd order accurate dielectrics. Add VSimPD to gain additional plasma reactions and to include beam-material interactions.

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.





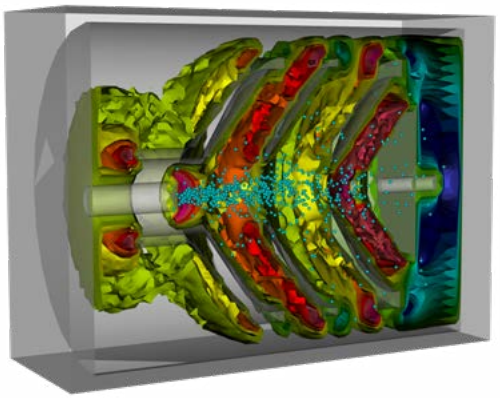
VSimMD Simulations Visualized

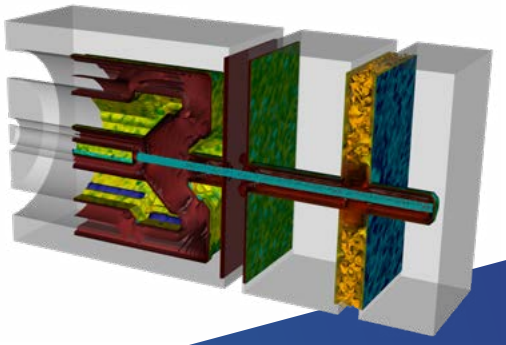
Upper left:
Klystron

Lower left:
Helix TWT
(Traveling Wave Tube)

Upper right:
Multistage Collector

Lower right:
Electron Gun





VSimMD Features	
» Embedded boundaries	» Controlled dispersion
» Field emission	» PML, MAL, & Port Boundaries
» Prescribed emission	» Field-scaled particles
» Fowler-Nordheim emission	» Partially transparent absorbers
» Thermionic emission	» Absorbing and reflecting embedded BC
» Space-charge limited Emission	» Feedback control
» Laser-induced emission	» Circuit equations
» Electron-induced electron emission	» Dynamic particle weight management
» Dey-Mittra	» Cerenkov Filter

TECH-X

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

TECH-X CORPORATION
5621 Arapahoe Avenue, Suite A
Boulder, Colorado 80303 USA
Tel: +1 303 448 0727
Email: sales@txcorp.com

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www.txcorp.com