

VizSpark

FOR HIGH-FIDELITY THERMAL (ARC) PLASMA MODELING

Features

VizSpark is a simulation tool for large-scale multi-dimensional thermal (arc) plasma modeling. Features of VizSpark include:

- 1-D, 2-D (planar/axisymmetric) and 3-D problems
- Local Thermodynamic Equilibrium (LTE) with special treatment of non-LTE at boundaries
- Automatic generation of plasma properties
- Coupling to electromagnetics (arc induced fields and external fields)
- Coupling to incompressible and compressible fluid-flow (natural convection, shocks, etc.)
- Conjugate heat transfer with arc+solid domains
- Material ablation models
- Moving body dynamics with arc domain
- Parallel computing

Applications

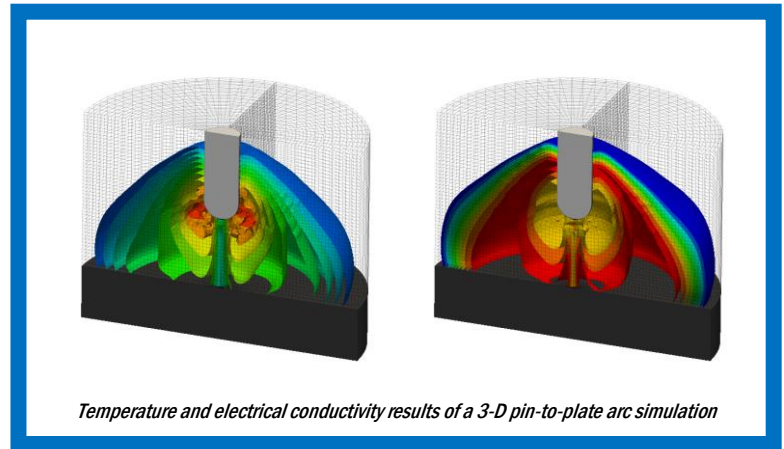
Typical application areas of plasma discharges where VizSpark can be used are:

- Free-burning arcs
- Wall-stabilized arcs
- Ablation controlled arcs
- Arcs in imposed and self-induced flows
- Magnetized arcs
- Arcs with electrode erosion

Industries served

The following industry segments are served by VizSpark:

- Lighting manufacturers (HID, arc lamps)
- Heavy manufacturing (welding, cutting)
- Coating (powder spray coating, etc.)
- Electrical device manufacturers (e.g. circuit breakers, switch-gear)
- Automotive ignition manufacturers (spark plugs, etc.)
- Space propulsion (Arcjets, MPD, etc.)



OVERVIZ

SOLUTIONS FOR YOUR MULTI-PHYSICS SIMULATION NEEDS

VizSpark is one of several simulation packages that are part of the OverViz multiphysics simulation suite. List of simulation packages in OverViz include:

- **VizGlow** Non-equilibrium Plasma simulator
- **VizSpark** Thermal (arc) Plasma simulator
- **VizEM** Electromagnetics simulator
- **VizFlow** Fluid flow simulator
- **VizGrain** Particle simulator
- **VizMesh** Geometry and unstructured meshing
- **ChemZone** Zero-dimensional reactor simulator

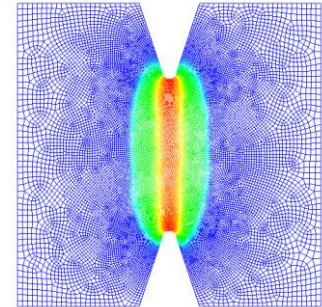
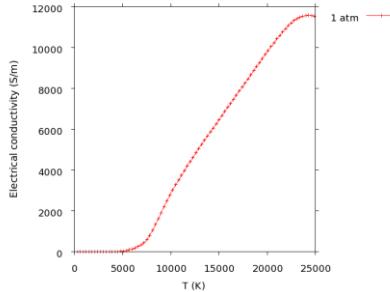
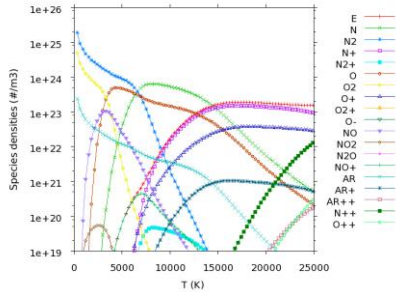
We provide the following services:

- Modeling and simulation services: work with customers to define problem and setup model
- Calibration of models for customer-specific problems
- Training and support to clients using software tools

VizSpark

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VizSpark Features at a Glance

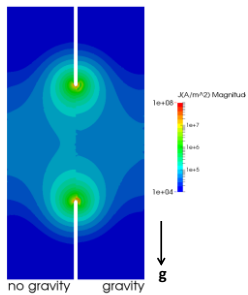


In-built Thermodynamic and Transport Property Generation

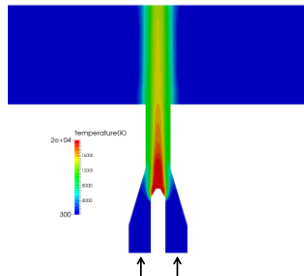
Mixed Unstructured Mesh

Also: Induced and imposed flow effects, Conjugate heat transfer, Parallel simulation capability

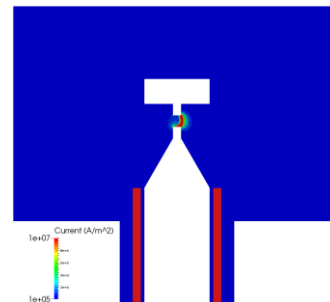
Types of Plasmas simulated using VizSpark



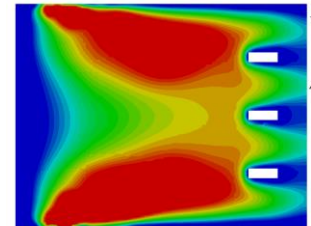
HID Lamps



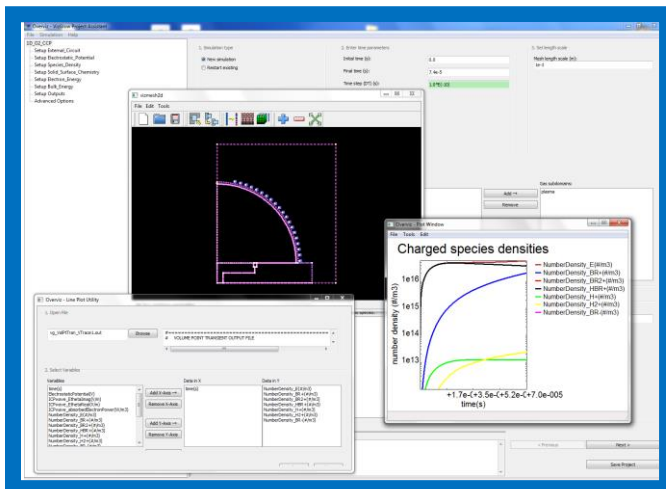
Plasma Torches



Automotive Spark-plugs



Circuit Breakers



VizSpark is supported by an intuitive Graphical User Interface with Pre- and Post- processing capability

For more information, please contact us:



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