SIMION® 8.1.1

The industry standard for charge particle optics simulation.

Now faster, more accurate, and more versatile.

Overview: SIMION is a software package primarily used to calculate electric fields and the trajectories of charged particles in those fields when given a configuration of electrodes with voltages and particle initial conditions, including optional RF (quasistatic), magnetic field, and collisional effects. In this, SIMION provides extensive supporting functionality in geometry definition, user programming, data recording, and visualization. It is an affordable but versatile platform, widely used for over 30 years to simulate lens, mass spec, and other types of particle optics systems.

-V
-RF
+RF
+RF
-RF
3D Electric Field
Ion Trajectories

RF Quadrupole Simulation

Einzel Lens
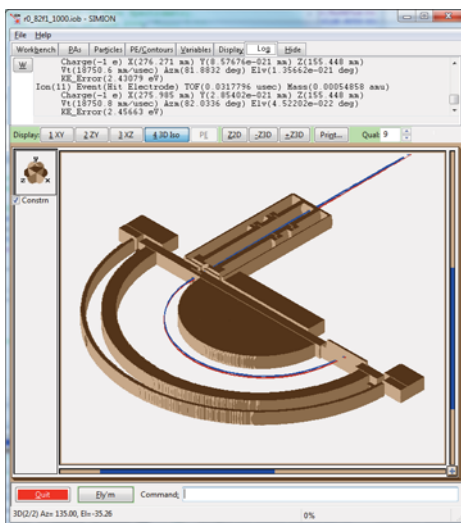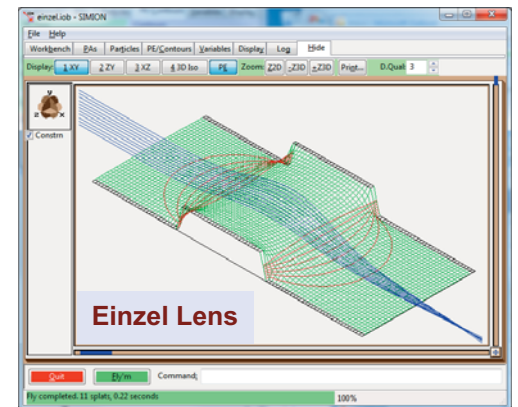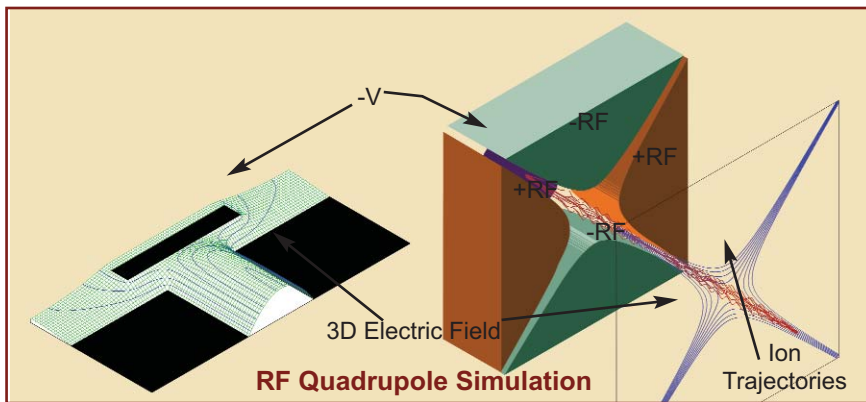
Hemispherical Analyzer with Lens Optics
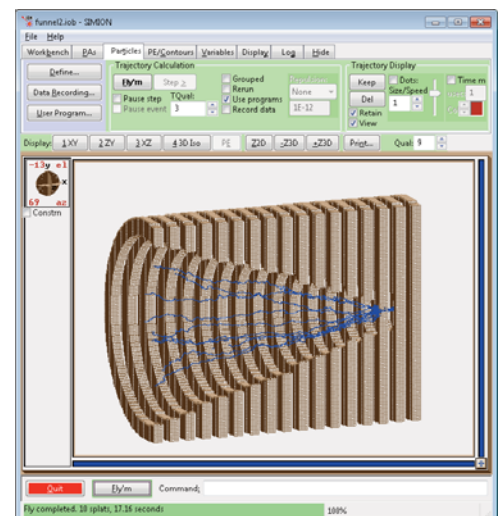
RF Ion Funnel/Collisions

Part No.	Description
SIMION81	SIMION 8.1
SIMION81LK	SIMION 8.1 Lab Kit - For Universities Use Only - Up to 30 seats
SIMION81U	SIMION 8.1 Upgrade from SIMION 8.0
SIMION81U7	SIMION 8.1 Upgrade from SIMION 7.0
SIMION81AL	SIMION 8.1 Academic Lease (1 year)

Free 8.1.x updates included with 8.1 purchase

Scientific Instrument Services, Inc.
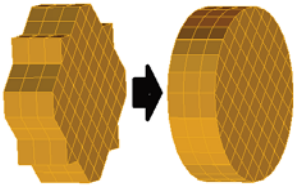1027 Old York Rd, Ringoes, NJ 08551-1039
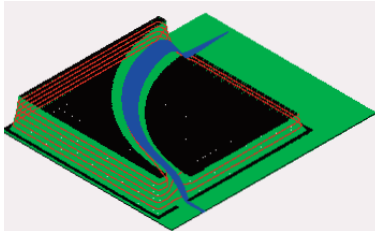**Phone: 908-788-5550   FAX: 908-806-6631   Web: http://www.simion.com**

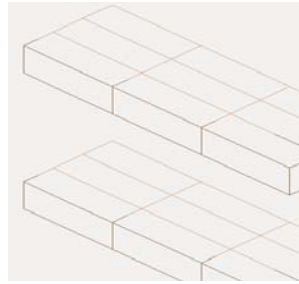# New Features in SIMION 8.1 (8.1.1/8.1.2) and 8.2EA/beta
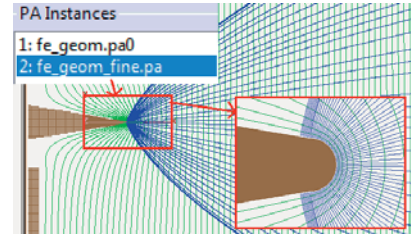
More Accurate

Improved curved surface handling ("surface enhancement") gives order of magnitude accuracy improvement

Large 64-bit array sizes up to 20 billion points / 190 GB
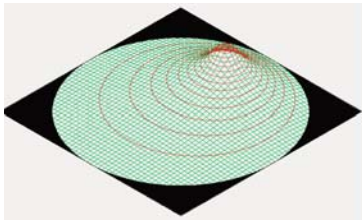
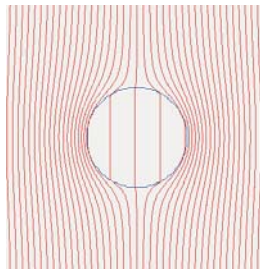**Example: 56 GB PA running in Amazon EC2**

Oblong, non-square grid cells.

PA Instances
1: fe_geom.pa0
2: fe_geom_fine.pa

Nested refining techniques

More Versatile

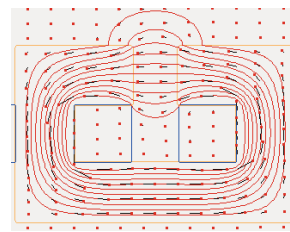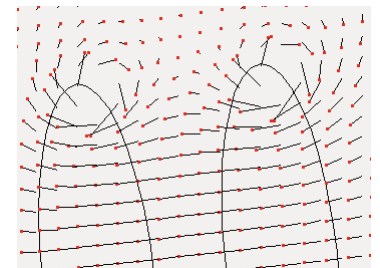**Poisson solver (Refine), fully programmable**

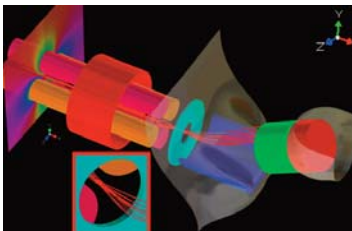**Example: charged sphere in grounded tube**

Dielectric materials (Refine)

Example: dielectric sphere in E-field
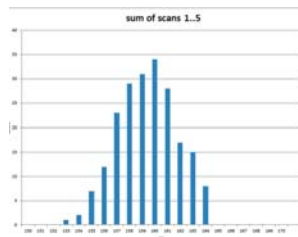

Permeability and magnetic vector potential (Refine) [8.2EA]

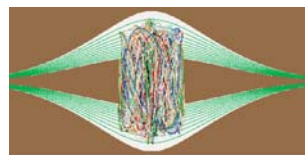**Example: C-magnet**

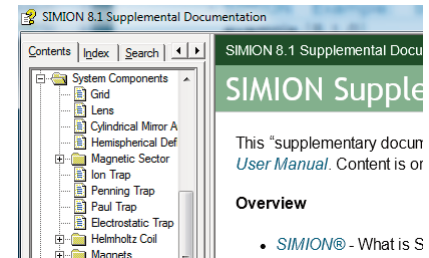**Programmable plotting capabilities for B-fields, gas flow, and wire coils.**

Example: Helmholtz coil

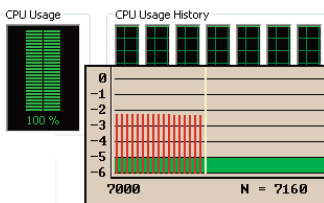**High quality 3D (OpenGL) graphics on View screen [8.2EA]**

sum of scans 1...5

Excel/gnuplot plotting integration

More examples

SIMION 8.1 Supplemental Documentation

Supplemental Documentation expanded

Faster

CPU Usage   CPU Usage History
100 %
7000   N = 7160

Multicore Refines [8.1]
Multicore Fly'm [8.2EA]
Additional parallization [8.2EA]
Improved Lua speed [8.2EA]


```
function segment.flym()
  -- Step combinations of voltages A an
  for VA = 10,100,10 do
  for VB = 50,70,5 do
    _VA,_VB = VA,VB
    run()  -- Perform trajectory calcul
  end end
end
function segment.terminate_run()
  print('transmission ratio=', count/to
end

simion.pas[1]:potential(x,y,z, 200)
simion.pas[1]:refine{convergence=1e-5}
simion.wb.instances[1].x = 10
simion.wb:efield(x,y,z)
```

New programming segments and APIs for run automation, PA/IOB manipulation, creating particles during Fly'm [8.2EA], performing Refines and GEM regeneration from View screen, and more.
Example: voltage/geometry optimization
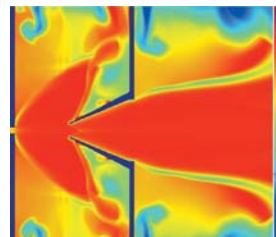
Third-party add-on package: Virtual Device Hydrodynamics 21.2

Gas flow solver for supersonic compressible conditions.

Native Linux batch mode SIMION binary now also available [8.2EA]

Early Access

Trial versions of features being developed for the next major version (8.2EA) can be previewed by 8.1 users via the "Check for Updates" button

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Scientific Instrument Services, Inc.™   **For more details, see http://simion.com/advances**   **Phone: 908-788-5550**