Particle Emission Sources: PIC Solver

PIC: Gaussian Emission

PIC: DC Emission

Edit Particle Source	X
Name: particle1 Particle properties Particle type: electron Unit charge value: -1.602177e-019 C Unit mass value: 9.109390e-031 kg Load Save	Particle density Min. Min. Max. Number of particles: 61 ✓ Adjust density to mesh Tracking Emission Model Fixed Edit PIC Emission Model DC emission OK
Define DC Emission Mod Kinetic Settings Kinetic type: Energy Kinetic value: 1000 Current Settings Current (abs): 0.270 Rise time: 0.1	jel OK Cancel eV Help

DC current from the surface

PIC: Field Emission

Name:	particle1			
Particle	e properties	Particle density		
	e type:			
elect	ron 🔻	Min.	1 I I	Max.
	harge value:	Number of particles:	54	
-1.60	2177e-019 C	Adjust density to	mesh	
	iass value:			
9.109	1390e-031 kg	PIC emission model		
Lo	ad Save	Gauss	•	Edit
		Gauss DC		
		Field Explosive		Help
	Define Field Emission			x
		n Model		X
	-Additional kinetic s			x
		n Model		×
	-Additional kinetic s		к	×
1	⊂ Additional kinetic s Kinetic type:	n Model ettings Temperature	т к %	×
	Additional kinetic s Kinetic type: Kinetic value: Kinetic spread:	Model ettings Temperature 293 0.0		X
	 Additional kinetic si Kinetic type: Kinetic value: 	ettings Temperature 293	%	X
1	Additional kinetic s Kinetic type: Kinetic value: Kinetic spread:	n Model ettings Temperature 293 0.0 0.0	%	×
	Additional kinetic su Kinetic type: Kinetic value: Kinetic spread: Angular spread: Fowler Nordheim se	n Model ettings Temperature 293 0.0 0.0 0.0	*	X
	Additional kinetic se Kinetic type: Kinetic value: Kinetic spread: Angular spread: Fowler Nordheim se Scaling factor (a):	n Model ettings Temperature 293 0.0 0.0 0.0 ettings 1.0	% • A/V ²	X
	Additional kinetic su Kinetic type: Kinetic value: Kinetic spread: Angular spread: Fowler Nordheim se	n Model ettings Temperature 293 0.0 0.0 0.0	*	X

Field emission uses the Fowler Nordheim equation.

$$J_{\rm fn} = aE^2 \exp\left(-b/E\right)$$

The bunch kinetic value corresponds to the temperature of the cathode.

Particle Emission Sources: TRK Solver