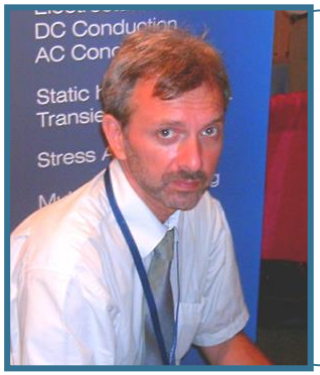
Electric current flow simulation with QuickField 6.3



Vladimir Podnos,
Director of Marketing and Support,
Tera Analysis Ltd.

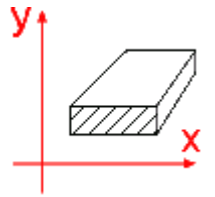
New features overview

Alexander Lyubimtsev
Support Engineer,
Tera Analysis Ltd.

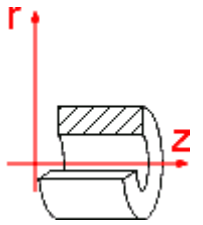
QuickField live demonstration

QuickField 6.3

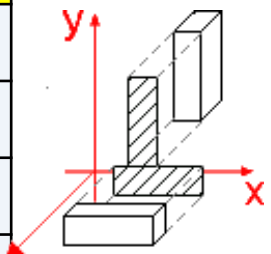
Magnetic analysis suite	
Magnetic Problems	Magnetostatics
	AC Magnetics
	Transient Magnetics
Electric analysis suite	
Electric Problems	Electrostatics and DC Conduction
	3D Electrostatics + 3D DC Conduction
	AC Conduction
	Transient Electric field
Thermo-structural analysis suite	
Thermal and mechanical problems	Steady-State Heat transfer
	3D Steady-State Heat transfer
	Transient Heat transfer
	Stress analysis



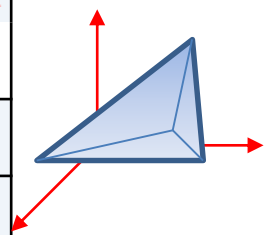
plane-parallel



axisymmetric

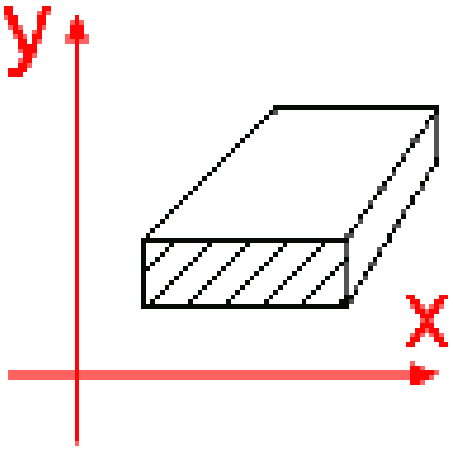


3D extrusion

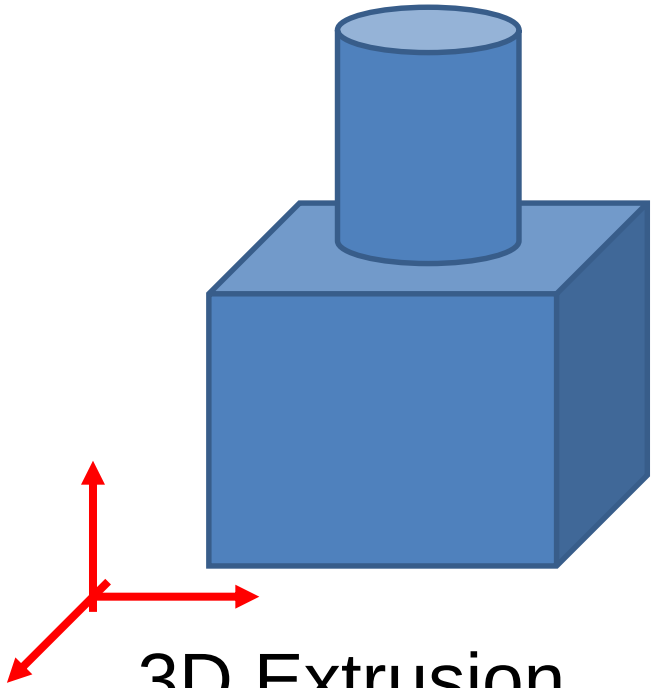


3D import

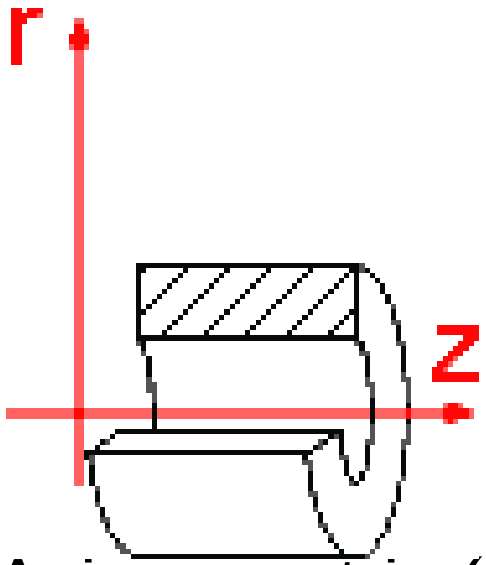
Geometric model



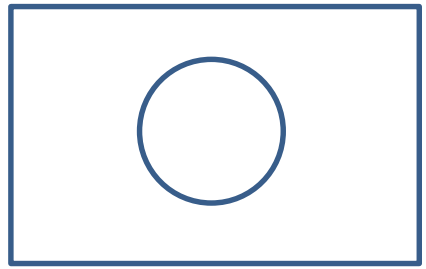
Plane-parallel (2D)



3D Extrusion

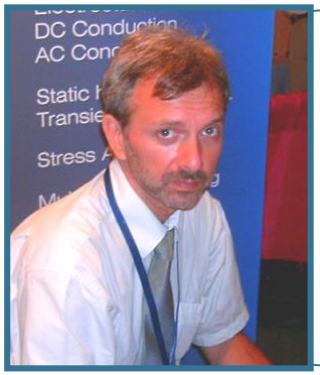


Axisymmetric (2D)



Plane-parallel (2D) with heights

Electric current flow simulation with QuickField 6.3



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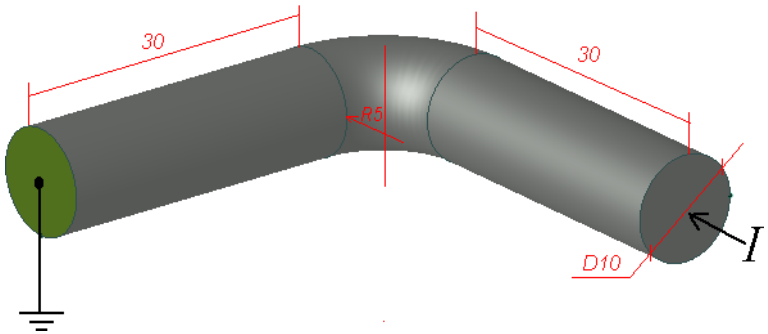
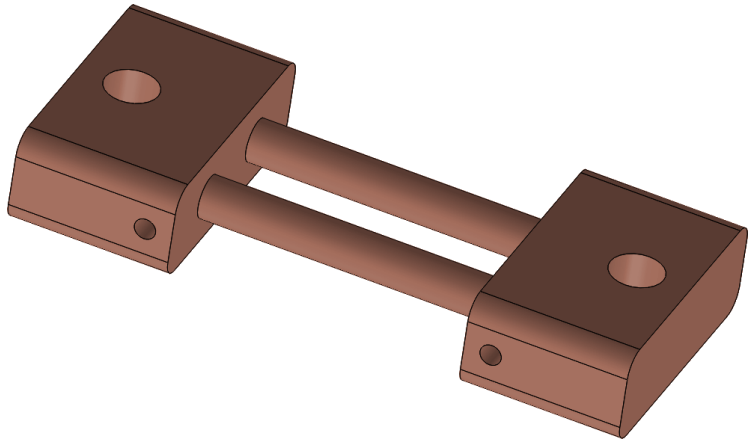
QuickField live demonstration

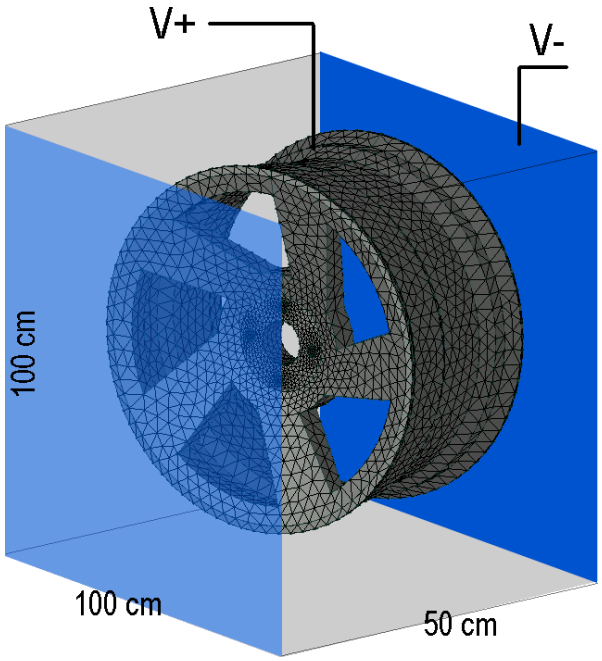
Electric current flow simulation with QuickField 6.3



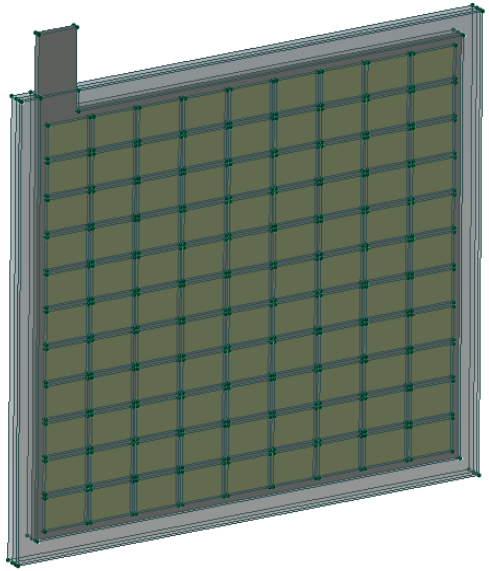
Bent copper wire resistance



DC shunt resistance

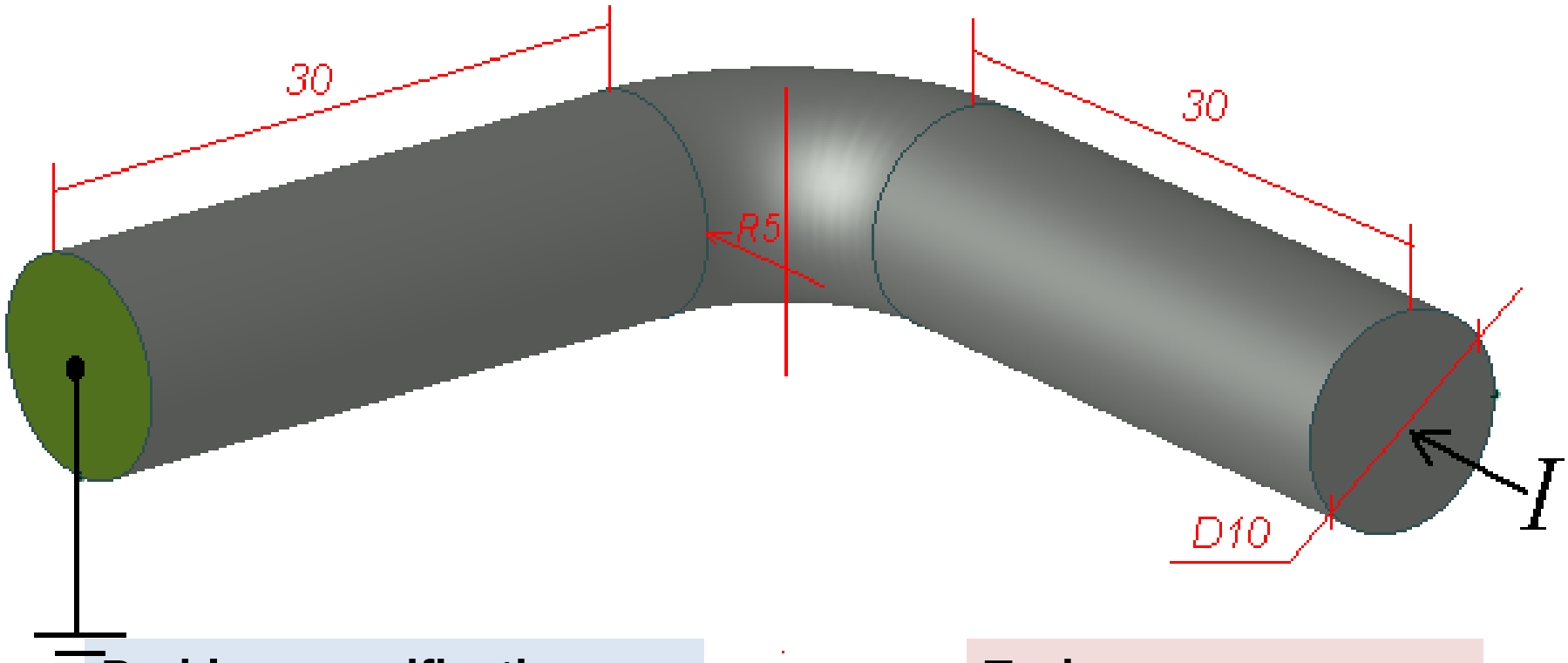


Rim anodizing



Acid lead battery electrode

Bent copper wire resistance



Problem specification:

Copper electric conductivity
σ = 56e6 S/m.

Current I = 100 A

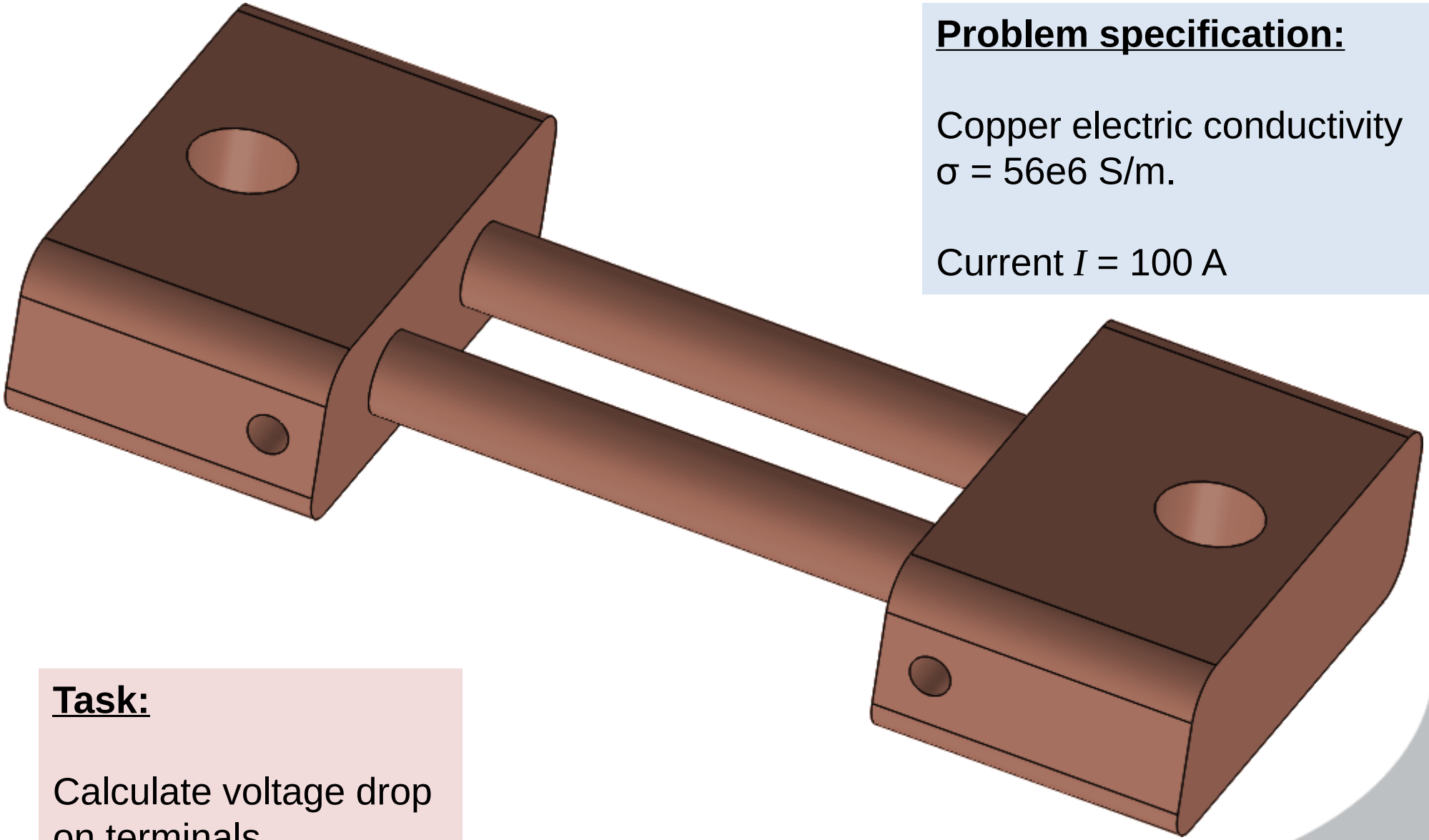
Task:

Calculate resistance.

$R = \Delta V / I$ [Ohm]

http://quickfield.com/advanced/bent_copper_wire_resistance.htm

DC shunt resistance



Problem specification:

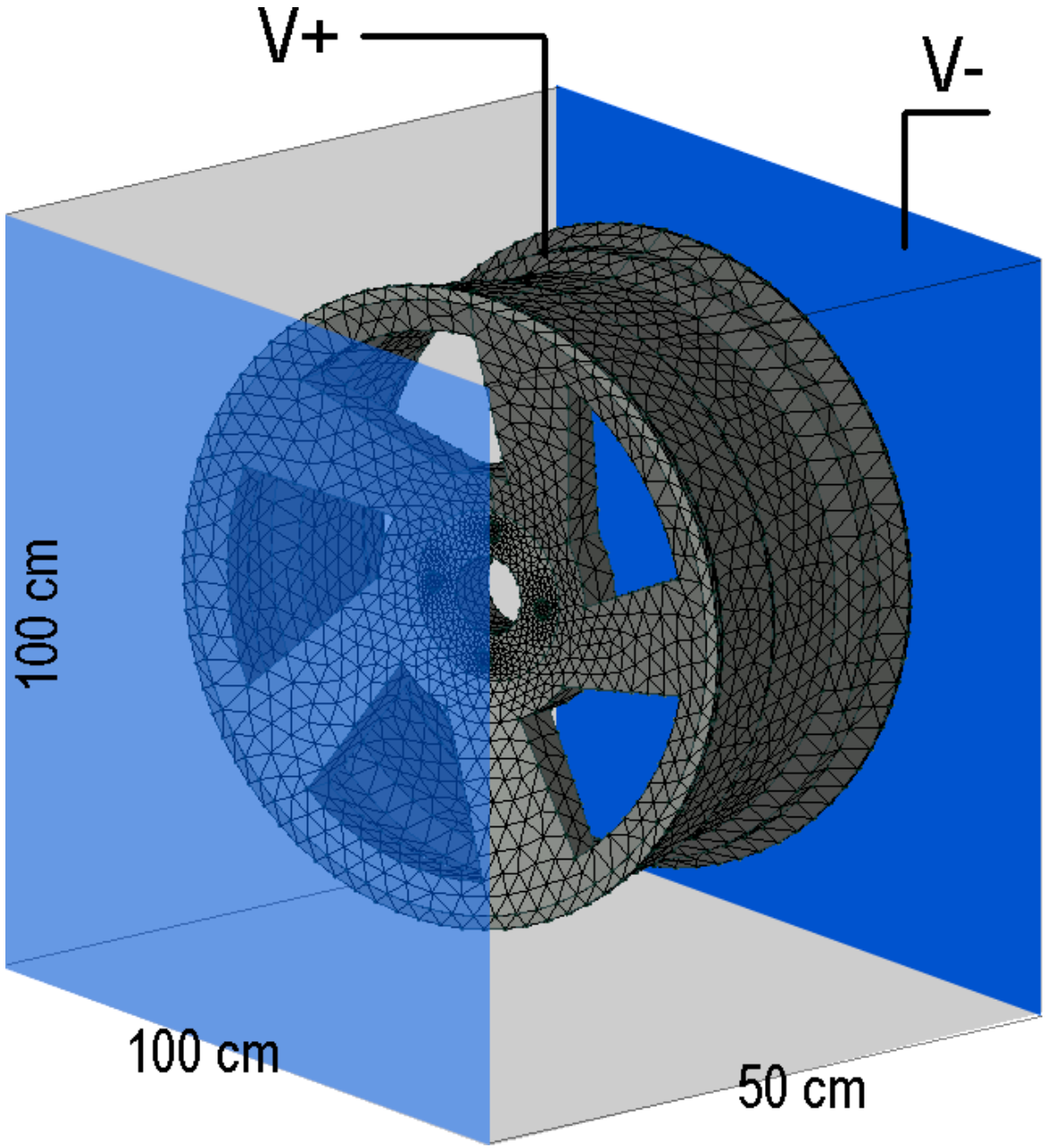
Copper electric conductivity
σ = 56e6 S/m.

Current I = 100 A

Task:

Calculate voltage drop on terminals

Rim anodizing



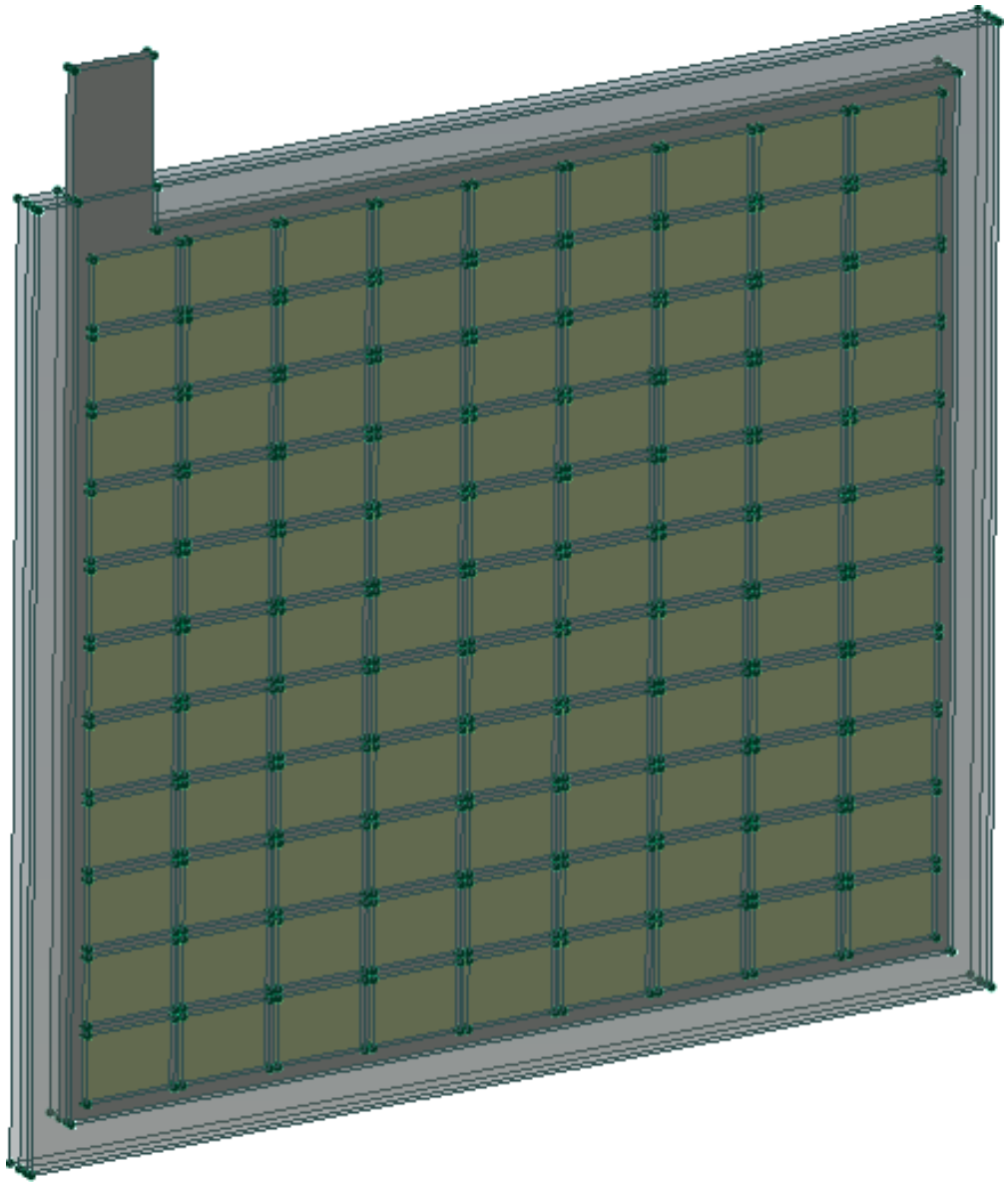
Problem specification:

V+ = 0 V
V- = -5 V

Task:

Calculate electric current distribution

Acid lead battery electrodes



Problem specification:

Electrode electric conductivity
σ = 4.8e6 S/m.
Electrolyte electric conductivity
σ = 90 S/m.

Potential difference = 2.4 V

Task:

Calculate electric current distribution