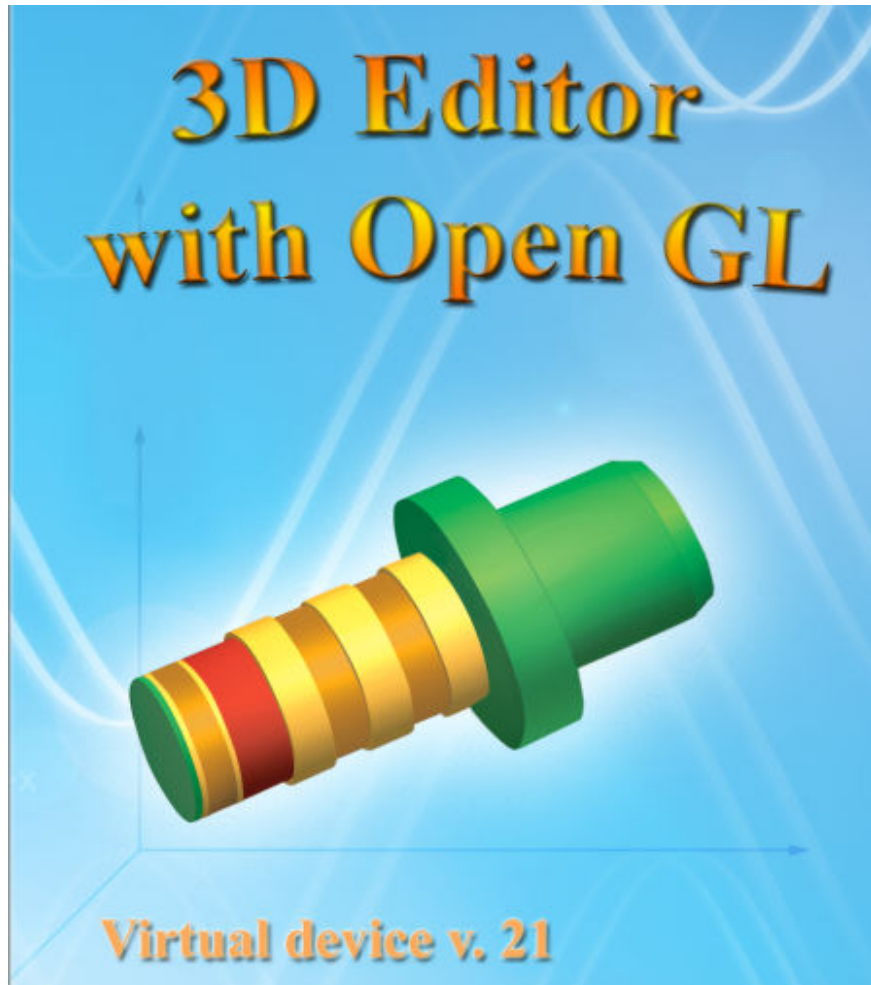


Koltsov S



Manual

**Saint Petersburg
2010**

Contents

Introduction	4
Chapter 1. Menu of 3D editor.....	5
1. 3D editor (Workbench).....	5
2. Objects.....	5
3. Working window.....	6
Objects' tree.....	6
The tree of mobile points.....	6
The three modes of working with object.....	6
Buttons.....	7
4. Parameters of view.....	8
Steps of movements and rotations.	8
5. Tools.....	9
Set up parameters of Simion project.	9
Setting of mobile points.....	9
Run scientific calculator.	9
6. Hyd. T (Hydrodynamics tools).....	9
Set up constants.....	9
Set up hydrodynamics parameters.	9
Set up size of hydrodynamics project.	10
Transformation project to Virtual jet format.	10
Save hydrodynamics parameters.....	10
Load hydrodynamics parameters.	10
Chapter 2. How to create 3D project.	10
Step 1. Setting geometrical parameters of project for Simion.....	10
Step 2. Creation of electrodes.....	11
Step 3. Transformation of project to SIMION.	14
Chapter 3. Description of geometrical objects.	15
Object Bar.....	15
Object Cylinder.....	17
Object Tube.....	19
Object Solid Cone.....	21
Object Solid Cone with hole.....	23
Object Solid Bar with hole.....	25
Object Solid Bar with split.....	27
Object segment.....	29
Object Cross.....	31
Any axial object.....	33
Object sphere.....	35
Chapter 4. Scientific calculator.	38
Introduction.	38
Chapter 5. 'Type of symmetry in Simion'.	44
Chapter 6. Mobile points.....	47
Chapter 7. How millimeters in 3D editor related to points in SIMION.	49
Chapter 8. Hydrodynamics project.	51
Introduction.....	51
Free jet expansion into vacuum.	51
Short guide to large particle method.	53
Initial equations to be solved.	53

Boundary condition.....	54
Physical units.....	54
Hydrodynamics tools.....	56
A quick tour to hydrodynamics simulation.....	58
Developing hydrodynamics project.....	58
Saving hydrodynamics project in Virtual Jet format.....	62
Loading hydrodynamics project into Virtual jet.....	62
Setting parameters of simulation in Virtual Jet.....	64
Simulation of gas flow.....	64
Chapter 9. Transformation 3D object into Virtual jet.....	66
Introduction.....	66
Transformation of objects into Virtual Jet.....	66
Object Bar.....	67
Object Cylinder.....	68
Object Tube.....	70
Object Solid Cone.....	72
Object Solid Cone with hole.....	73
Object Solid Bar with hole.....	75
Object Solid Bar with split.....	77
Object segment.....	79
Conclusion.....	81
Literature.....	82