

CST PARTICLE STUDIO(tm)

Technical Specification

7 February 2007

Frontend Module

- For functionality and CAD/EDA import filter, see technical specifications of the CST DESIGN ENVIRONMENT™

Electrostatics Field Solver Module

- For functionality see technical specifications of CST EM STUDIO™

Magnetostatics Field Solver Module

- For functionality see technical specifications of CST EM STUDIO™

Eigenmode Solver Module

- For functionality see technical specifications of CST MICROWAVE STUDIO®

Particle Tracking Module (GUN)

- Arbitrary shaped particle source surfaces
- Space charge limited, thermionic and field-induced emission model
- Tracking in self-consistent fields
- Gun iteration for static guns.
- Analysis of extracted particle current and space charge
- Monitoring of beam cross-section, phase-space diagram and other statistical data of the beam
- Automatic parameter studies using built-in parameter sweep tool
- Automatic structure optimization for arbitrary goals using built-in optimizer
- Secondary emission
- Monitoring of position, velocity, angle, normalise impulse, gamma, beta, energy, current, charge.

Wake Field Module (WAK)

- Excitation of fields by ultrarelativistic and non-ultrareletivistic particle beam currents.
- PERFECT BOUNDARY APPROXIMATION (PBA)® for accurate and fast computation of wake fields in arbitrarily shaped objects.

- Resistive wall wake fields
- Automatic evaluation of loss factor
- Calculation of wake potential and impedance
- Monitoring of beam excited fields

Optional Features - Not included in Standard Configuration

- Multiprocessor Option

Documentation

- Handbook "CST STUDIO SUITE™ First Steps"
- Handbook "CST PARTICLE STUDIO™ - Getting Started and Tutorials"
- Handbook "CST STUDIO SUITE™ Advanced Topics"
- Online Help System

Minimum Hardware Requirements

- Pentium PC, 1GB RAM, DVD- Drive, at least 10GB of free hard disc space.
- Fully OpenGL compliant graphic card
- Windows XP Professional
- Some solvers support Linux OS

General

- CST PARTICLE STUDIO™ is a configurable tool with a choice of 5 solver modules. The standard configuration is one full process with the electrostatics field solver module, the magnetostatics field solver module, the particle tracking module (GUN), and one additional frontend. Floating and node-locked licenses are available. Please contact your local sales office for further information.