# Field Precision Releases GamBet, 3D Finite-element Monte Carlo Software for X-ray Technology

*By Stanley Humphries*
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*Field Precision LLC today announced the release of GamBet(TM), a 3D finite-element software suite for Monte Carlo simulations of X-rays and electrons in matter. The program has applications to X-ray sources, imaging devices and radiation shielding.*

GamBet (gamma and beta particles) represents an innovative approach to Monte Carlo calculations through the application of finite-element technology. Physical objects are represented with high-accuracy conformal meshes. Users can rapidly construct and confirm complex systems with the interactive solid modeler. It is possible to define objects and surfaces of any shape and even import parts directly from SolidWorks and other 3D CAD programs. GamBet features efficient integration with other Field Precision 3D packages. As a result, the program has the unique capability to import 3D electric and magnetic field information and to export energy deposition profiles for coupled thermal solutions.

The integrated GamBet package includes a graphical solid-geometry editor, an automatic conformal mesh generator, the Monte Carlo engine and interactive post-processors for 2D and 3D solutions. A textbook-quality reference manual and comprehensive tutorial manual of worked examples with a library of input files are also supplied. Most important to the budget-conscious researcher, the complete software suite is available for under $3500.00. This cost represents a single-time purchase price with no continuing license fees and free updates.

Program features include:

-- Direct import of complex parts from SolidWorks and other 3D CAD programs.

-- Postprocessor capabilities include high-quality 2D and 3D plots, interactive point and scan calculations and dose and energy integrals.

-- Plot selected trajectories of electron, photons and positrons as well as dose distributions.

-- The included GenDist program is a powerful utility for the creation and statistical analysis of particle distributions.

-- Sophisticated features for variance reduction.

-- High degree of transparency with well-documented data formats.

-- Programs may be initiated from the command prompt, making it easy to create user control loops with Perl or other scripting languages.

-- Read input files from HiPhi(TM) (electric fields) and Magnum(TM) (magnetic fields) and export information to HeatWave (TM) (static and dynamic thermal transport). Close integration with the OmniTrak (TM) electron gun program.

-- 32 or 64 bit solvers with dynamic memory allocation for huge meshes.

To check prices or arrange a free trial, see:

http://www.fieldp.com/order.html

To get technical details and download the GamBet reference and tutorial manuals, see:
http://www.fieldp.com/gambet.html

Editors: To download a GamBet image and caption, please go to http://www.fieldp.com/pressrelease/pressrelease.html. Click on the thumbnail to view or to download the full size image.

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About Field Precision
Field Precision LLC has created easy-to-use 2D and 3D simulation software for personal computers since 1989. Application areas include electrostatics, permanent magnets, charged-particle devices, microwave equipment, biomedical engineering and X-ray technology. The company is based in Albuquerque, New Mexico. Our educational texts on charged particle physics and technology are in use by over 20,000 students and researchers. For detailed information (customer lists, research projects and publications), please see http://www.fieldp.com/company.html.

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| Category | Engineering, Medical, Science |
| Tags | finite element, Monte Carlo, x-ray source, x-ray image, medical imaging, radiation shielding, gamma particles, beta particles |
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