EMPC

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See you at RADECS 2016
NOVICE Software Booth #25

NOVICE

The Leading Software for Space Systems Radiation Effects and 3D Modeling

MISSION VALIDATED

The World's Leading Space Agencies and Private Companies License NOVICE and Consult with EMPC for Critical Radiation Assurance Calculations and Design [1]

MISSION CRITICAL

GEANT4 and MCNP Users Turn to NOVICE for the Most Complex Analyses

- NOVICE accurately solves in minutes problems that other software cannot solve, or take weeks or months to solve. [2]
- No analysis requirement has ever exceeded NOVICE's capabilities, which include fast processing of +200,000 objects and +256 CAD files with no loss in speed or accuracy, and continue to increase.

MAJOR CAPABILITIES

- Calculates radiation effects on complex CAD/CSG geometry models of space systems [3]
- Fully addresses total dose, damage, charging, single particle and other radiation effects from the Van Allen Belts, solar particle events, galactic cosmic rays and on-board and plane-wave nuclear sources
- Features the only ADJOINT Monte Carlo capabilities for both neutral and charged particles, including flux-at-a-point calculations in the continuous energy context [4]
- Interfaces under license with GEANT4, MCNP, ITS/ACCEPT, SPENVIS, and others

ANALYSIS METHODS

- ADJOINT and Forward Monte Carlo
- Point Kernel and Solid-Angle Sectoring Approximations
- Advanced Moments and Matrix Mathematics
- Probabilistic Analysis Using Deterministic Environment, Transport and Mass Distribution Data [5]

GRAPHICAL USER INTERFACE

- Advanced OpenGL 3D viewer uniquely isolates any object within a complex system by virtually any descriptor (material, size, weight, location, etc.) with one click, then zooms and manipulates the object for viewing and analysis
- Enables seamless, single run NOVICE analysis of multiple thresholds of multiple variables (material, thickness, radiation, system configuration, etc.)
- Automatically converts CAD files into geometry and all other analysis information
- Easily imports and edits data files

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ABOUT THE NOVICE SOFTWARE SUITE

Validated on hundreds of missions with the world's premier space agencies and private companies, NOVICE leads the way in space systems radiation effects analysis and 3D modeling. Created, continually developed and licensed by EMPC, NOVICE is a mission-critical part of satellite and deep space probe programs.

NOVICE users include NASA, Centre national d'etudes spatiales (CNES), Airbus, Thales Alenia Space, the CalTech Jet Propulsion Laboratory, the Johns Hopkins University Applied Physics Laboratory, and the leading aerospace and defense companies in North America and Europe.

EMPC has become aware of entities claiming, among other things, interoperability with NOVICE. EMPC expressly disclaims all such statements. No entity making such claims is, or has ever been, a licensee of NOVICE or any other EMPC product. Any entity making such claims has not communicated with EMPC about such claims, has no relationship with EMPC, and has no permission, no agreement, and no authorization to claim interoperability with NOVICE or any EMPC product.

ABOUT EMPC

Experimental & Mathematical Physics Consultants is, and has been for decades, a key partner in the development and application of requirements-driven solutions for radiation effects on space systems. EMPC created, develops, and licenses its proprietary NOVICE Software Suite.

EMPC also provides consulting services to NOVICE licensees and non-licensees alike facing challenging radiation effects issues in the space, aerospace, defense, and medical industries.

EMPC's founder and president Thomas M. Jordan and its aerospace engineer and code developer Larisa Milic provide these consulting services via telephone, email, and in person on-site at your facility.

As consultant to the leading private space and defense companies and governmental space agencies, EMPC has performed a critical role in the success of many key satellite and probe programs.

EMPC pursues an innovative and evolving approach to radiation transport methods, offering clients industry-leading expertise and solutions in the analysis of space systems.

1. Mission Validated: Juno mission to Jupiter, New Horizons mission to Pluto, Hubble Space Telescope, Global Positioning System (GPS) Constellation, Voyager, Galileo, Solar Dynamics Observatory, Space Based Infrared System (SBIRS), Magnetospheric MultiScale (MMS) Constellation, and Hundreds More Science, Defense, and Commercial Satellites.
2. NOVICE performs ADJOINT Monte Carlo analysis of space environments, point detectors (which GEANT4 and MCNP are believed only able to address for neutral particles), and the largest CAD geometries, easily 1,000,000 times faster than GEANT4, MCNP, or any other Monte Carlo method used to seek NOVICE's accuracy.
3. CATIA/AICapone, ProEngineer/CREO, *STEP, *IGES, VMRL, STL, SAT, NX, CADLOOK, SOLIDWORKS, AUTOCAD. See IEEE Trans. Nucl. Science, Vol NS-23, No. 6, Dec 1976, pp. 1857-1861.
4. ADJOINT Monte Carlo for charged particles was pioneered by EMPC's chief physicist Thomas M. Jordan, the leading authority in space systems radiation analysis.
5. M.A. Xapsos, et al., "Inclusion of Radiation Environment Variability in Total Dose Hardness Assurance Methodology", submitted for pub. IEEE Trans. Nucl. Sci. (Jan. 2017)