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MCNP simulations for chemical threat detection with neutrons and POLFEL Free Electron Laser beam dump modelling

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A Monte Carlo N-Particle transport code (MCNP) is exceptionally useful tool for many nuclear systems designing and its optimization. The code is widely used in many task concerning nuclear reactors operation, homeland security, threat detection using neutron sources, radiation safety and many others. Basically, the MCNP work principle is based on transportation of particles through virtually designed medium with respect to reaction cross sections implemented in the program. Finally, the desired simulation output can be set, in example, as an average flux through volume or pulse height distribution. In this presentation, the MCNP simulations for threat detection using neutron activation and POLFEL free electron laser beam dump performance will be presented.

Collaboration

SABAT and POLFEL

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