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Enabling change for validated exascale fusion nuclear science

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Within the fusion radiation transport community for many years the de facto standard codebase for simulation was and still is MCNP. MCNP suffers from very few community perceived drawbacks having widely validated and verified physics, large user base, simple interface, but the main issue in the age of democratised computing access is prohibitive licence conditions. Thus, if we need to be able to deploy our calculations anywhere without restriction, we must use another transport code. Herein there is reporting of a new tool, **csg2csg**, which allows MCNP geometry to be translated to other formats including FLUKA, Serpent2, PHITS and OpenMC. This tool allows geometry and materials to be translated between forms, which facilitates the performance of standardised tests between codes, e.g. shielding benchmarks in SINBAD and criticality benchmarks in ICSBEP. Examples of fusion & HEP relevant validation and comparisons will be shown.

Consider for promotion

Yes

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