

KASKAD: Deterministic Two-Dimensional Neutral and Charged Particle
Transport Code System

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Abstract

The KASKAD code system simulates neutron- proton- pion- and photon transport in the Accelerator Driven Systems (ADS). The main code KASKAD-S solves the multigroup transport equation by the discrete ordinates method in two-dimensional geometries. The scattering anisotropy is treated in the approximation. Coupled multigroup cross sections for neutrons, protons, and pions are provided by CONSYST/ABBN for energies of up to 20 MeV, and SADCO-2 for energies from 20 MeV to 10 TeV. Coupled electron-photon multigroup cross-sections are generated by the adapted version of CEPXS (called by CEPXS-BFP). Postprocessor KASF prints, verifies and processes the flux, source, and functional interface of KASKAD-S results. Several benchmark results are provided to illustrate the performance of the algorithm implemented in the KASKAD code system.