# THE DRESOR METHOD FOR RADIATIVE HEAT TRANSFER IN A TWO-DIMENSIONAL, RECTANGULAR ENCLOSURE

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ABSTRACT The highly directional intensity information will be very helpful for some inverse radiative transfer problems, such as two-dimensional/three-dimensional temperature reconstructions in industrial furnaces through radiative image processing techniques. The DRESOR method was developed to solve the radiative transfer equation in a two-dimensional, anisotropic/isotropic scattering, rectangular enclosure. Radiative intensity with highly directional resolution in 6 658 directions in the hemisphere space at the boundary of the enclosure was provided by the DRESOR method. The results for the dimensionless radiative heat flux obtained by the DRESOR method agreed well with those by the discrete ordinates method, an approximate method and the finite-volume method in literature. It was found that in the enclosure with an isotropic scattering medium, the intensity at the boundary varies with the azimuthal angle, especially for the points close to the emitting source. In the anisotropic scattering media, the largest intensity at the boundary occurs with the largest forward scattering capability, and the smallest one with the largest backward scattering capability.

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