A HYBRID SCHEME FOR SPATIAL DIFFERENCING IN THE FINITE VOLUME METHOD FOR RADIATIVE HEAT TRANSFER IN COMPLEX GEOMETRIES

P. Kumar [*] and V. Eswaran [**]
Department of Mechanical Engineering,
Indian Institute of Technology, Kanpur--208016, India.
[*]dpradeep@iitk.ac.in, [**]eswar@iitk.ac.in

ABSTRACT. A hybrid scheme for the finite volume solution of the radiative heat transfer equation (RTE) on non-uniform non-orthogonal grids is presented that is compatible for integration with finite volume solutions of computational fluid dynamics and heat transfer (CFD&HT). The governing equation and boundary conditions are discretized using directional weights. The scheme is tested for several 2D and 3D benchmark solutions for an absorption-emission medium.