APPLICATION OF A COMPUTER GRAPHICS TECHNIQUE FOR RADIATIVE TRANSFER SIMULATION IN MULTIDIMENSIONAL COMBUSTION SYSTEMS

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ABSTRACT. The aim of this paper is to present the use of computer graphics techniques in the context of radiative transfer simulation. The new voxels introduced here have to take into account the temperature and concentration gradients, in order to evaluate accurately radiative transfer exchanges. An acceleration technique using multi-level grids is shown and the gain of CPU time is demonstrated in a case of a volatile organic composites furnace. The results indicate that these techniques are efficient not only in complex geometries, but also in simple geometries when high gradients of temperature or concentration are present.