

**RAY TRACING ON GRAPHIC PROCESSORS:  
TOWARDS HIGH FIDELITY RADIATIVE TRANSFER SOLVERS**

**Faizan P. Siddiqui, Altug M. Basol, M. Pinar Mengüç**  
Mechanical Engineering Department,  
Ozyegin University, Istanbul, Turkey

**ABSTRACT.** The extreme computational cost of Monte Carlo ray tracing method precludes its widespread use for the numerical solution of radiative transfer equation. This work focuses on substantially decreasing the computational cost of the method by utilizing the computation power of the modern graphic processors. The current implementation developed to carry out view factor calculations for complex three dimensional geometries reduced the computation time of the method in excess of 100 times when compared with similar implementations on CPU.