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## Accelerated Monte Carlo method for computation of photon migration by matrix description of photon direction

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### Keywords

highly scattering materials, photon migration, Monte Carlo method

### Abstract

A new accelerated Monte Carlo method that uses matrix description of photon migration (instead of vector description) for computation of photon migration in highly scattering media is presented. This method requires two multi-clock floating-point instructions (one division and one square root operation) less for each scattering event than the standard method. Theoretical considerations show that the new method reduces calculation time about 4% for personal computers with a one-pipeline floating-point coprocessor, or more on computers having multi-pipeline floating-point units. Tests performed on selected types of personal computers have shown a few percent (from 2.5% to 6%) decrease in computation time when the new method was used.



167.3 kB

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