

Abstract Submitted
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Development of the Web-based Simulation Platform for gMicroMC¹ PARVAT SAPKOTA, THOMAS SHIPMAN, EDWARD GONZALES, YUJIE CHI, University of Texas at Arlington — Purpose: Our lab developed an open-source graphical processing unit (GPU)-based microscopic Monte Carlo simulation tool (gMicroMC) for ionizing radiation-induced DNA damage computation. Although the package has gained an increasing interest, the current version requires relatively high coding experience from the user thus hindering its broad application. In this work, we initiated an effort to build a web-based interface to enable a user-friendly simulation environment. Method: We proposed to establish two servers: a web server for storing static files and an application server for performing GPU-based gMicroMC simulation. We will employ the Django web framework for various tasks such as job submission and implement the Three.js framework to render the 3D graphics at the platform. Result: We were able to establish a first version of the simulation platform, where the user can setup the simulation parameters and visualize the setup geometry in 3D. We also configured our web server and were able to transfer our codes to it from our local machine. Conclusion: We laid the foundation for the web-based simulation platform of gMicroMC. Our next steps are to fully accomplish the proposed function of the platform, test it and make it available to the public.

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