Contribution ID: **300** Type: **Sectional reports**

GPGPU implementation of Schrödinger's Smoke for Unity3D

Thursday, 13 September 2018 14:30 (15 minutes)

The paper describes an algorithm for Eulerian simulation of incompressible fluids—Schrödinger's Smoke. The algorithm is based on representing models as a system of particles. Each particle represents a small portion of a fluid or amorphous material. A particle has a certain 'lifespan', during which it may undergo various changes. The Schrödinger's Smoke solver algorithm was implemented in Unity3D environment. We used Particle System and Compute Shader techniques to transfer the bulk of computational load relating to simulation of physical processes to GPGPU—it allowed real-time interaction with the model. The solution we developed allows to model such effects as interactions between vortex rings —i.e., their collisions and overlapping—with a high degree of physical accuracy.

Primary authors: IASHNIKOVA, Anastasia (Saint-Petersburg State University); IAKUSHKIN, Oleg (Saint-Petersburg State University); SEDOVA, Olga (Saint-Petersburg State University)

Presenter: IASHNIKOVA, Anastasia (Saint-Petersburg State University)

Session Classification: 8. High performance computing, CPU architectures, GPU, FPGA

Track Classification: 8. High performance computing, CPU architectures, GPU, FPGA