ID de Contribution: **25**　　　　　　　　　　　　　　　　　　　　Type: **Non spécifié**

Technique session - Real-time visualization of dynamical systems

mardi 17 février 2026 14:00 (1h 15m)

Solutions of differential equations can be animated with a particle system in Unity 3D game engine. You can drop a particle on a random position - its initial condition, say (x y z) at t=0 - and watch it move real-time in whichever direction the equations command. With modern graphic cards, you can do it with millions of colored particles at the same time. This is a way to highlight and explore the entire phase space. Parameters can be updated real-time without restarting the simulation, enabling fast and thorough explorations. This approach is not limited to real 3-dimensional PDEs as any number of dynamic variables can be computed each step.

Implementation of the classic Lorenz attractor will be demonstrated and explained from scratch.

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