Computational Steering of GEM Simulations

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Motivations

- Analyze the GEM simulations in real-time.
- Change the parameters of running simulations without resubmitting the job.
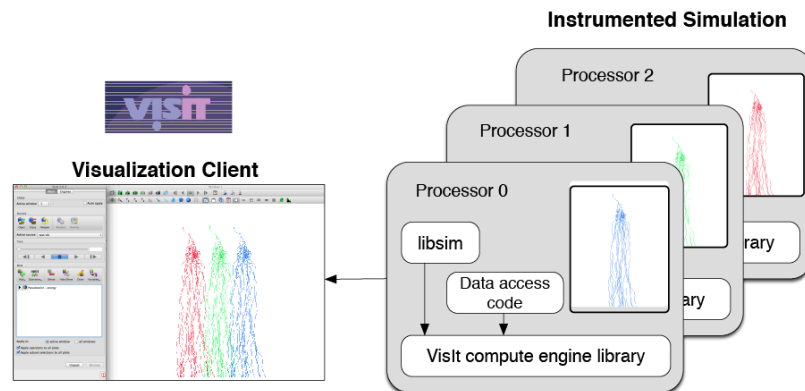- Track the propagation of electron avalanches in real-time.

Figure 1: VisIt client and libsim coupled with Garfield

Tools

- The parallelized version of the GARFIELD.
- VisIt* client and its libsim library coupled with the GARFIELD for in-situ visualization.

* https://wci.llnl.gov/simulation/computer-codes/visit/

Results

Following figure shows the propagation of electron avalanches over initial 14 seconds of the simulation. The simulation is running over 10 processors in parallel. The color indicate different processors.
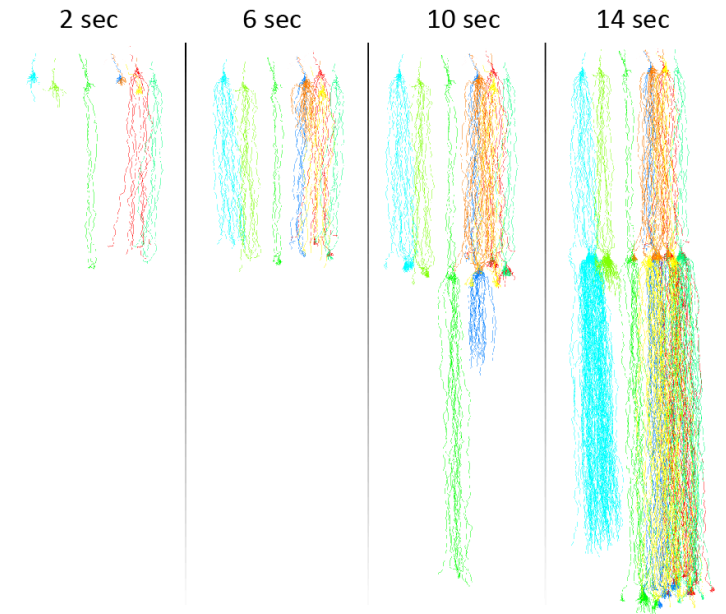

Figure 2: Real-time visualization of electron avalanches in GEM simulation