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Langevin Meeting

May 2, 2023

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Tested Parts of the Algorithm

- ☑ Initial conditions (ρ)
- ☑ Time integration
- ☑ γ-factor
- ☑ Solver output (ϕ)
- ☑ `Grad` operation ($\vec{E}$)
- ☑ GPU statistics computation (120× speedup)

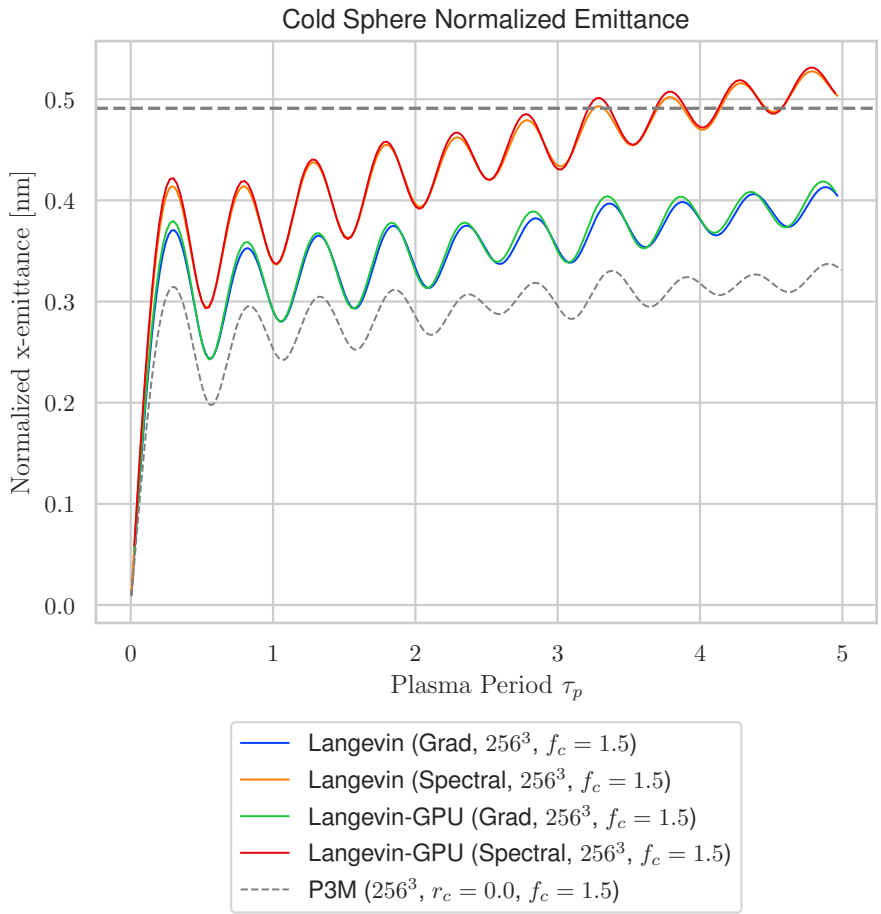

Figure 1: Normalized Emittance.

Next Steps

- Setup v-space datastructures (Matrix-Field for Diffusion Tensor?)
  - Check what fields can be shared among the solvers (given sequential execution)
  - Vector-Field for $\vec{F}$
  - Matrix-Field for D?
- Cholesky decomposition of 3×3 matrix
- Solvers for Rosenbluth Potentials:
  - Hockney Solver: $h(\vec{v})$
  - Biharmonic Solver: $g(\vec{v})$
  - Onesided Hessian for $D(\vec{v})$