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Langevin Meeting

May 9, 2023

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Progress

- ☑ Merged all changes from `master` (emittance coincides with previous version)
- ☑ Memory HWM (256^3, no collisions): 1.6 GB
- ☐ Setup v-space datastructures (incl. 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 $\boldsymbol{D}$?
- ☐ Cholesky decomposition of 3×3 matrix
- ☐ Solvers for Rosenbluth Potentials:
  - ☐ Hockney Solver: $h(\vec{v})$
  - ☐ Biharmonic Solver: $g(\vec{v})$
  - ☐ Onesided Hessian for $\boldsymbol{D}(\vec{v})$

(Adjusted) Timeline

Date	Target Goals
16/05	Setup v-space datastructures in `LangevinParticles.hpp`. Add Friction coefficient. Add Solver for 2nd Rosenbluth potential $g(\vec{v})$.
23/05	Analyse structure of $\boldsymbol{D}$. Finish Diffusion coefficient computation (via onesided Hessian operator).
30/05	Analyse interplay between collision coeff.'s (see whether Severin's conclusions are confirmed or can be disproved).
	Profiling of runtime and memory consumption.
06/06	Start improving most pressing bottlenecks. Start writing.
17/07	Submission.

Table 1: Timeline with approximate milestones