

Acts Parallelization Meeting

Stephen Nicholas Swatman








March 24, 2023











Today's Contributions

- **CUDA track finding with CKF**
by Beomki Yeo
- **Seed finding using a non-jagged EDM**
by Guilherme Metelo Rita De Almeida


acts-project/traccc: PRs merged between 2023-03-10 and 2023-03-25 |

-  **Project Version Update, main branch (2023.03.10.) (PR#340)**
by @krasznaa, no assignee, merged on 2023-03-10
-  **Add CI functionality to detect FP64 instructions in PTX (PR#336)**
by @stephenswat, no assignee, merged on 2023-03-10
-  **Add option to log multi-threaded results to output file (PR#341)**
by @guilhermeAlmeida1, no assignee, merged on 2023-03-10
-  **ci: Put test data into tar files, unpack them in the CI (PR#342)**
by @paulgessinger, no assignee, merged on 2023-03-13
-  **Add Thrust Scan and Sort tests (PR#349)**
by @beomki-yeo, no assignee, merged on 2023-03-16
-  **Remove deprecated information from CPU seeding EDM (PR#350)**
by @guilhermeAlmeida1, no assignee, merged on 2023-03-16
-  **Make CUDA chain use asynchronous copies and kernel launches throughout (PR#345)**
by @guilhermeAlmeida1, no assignee, merged on 2023-03-17















acts-project/traccc: PRs merged between 2023-03-10 and 2023-03-25 II

-  **Replace FP64 by FP32 in gain matrix smoother (PR#339)**
by @stephenswat, no assignee, merged on 2023-03-17
-  **Log 'target_cells_per_partition' in throughput measurements (PR#343)**
by @guilhermeAlmeida1, no assignee, merged on 2023-03-17
-  **Project Version Update, main branch (2023.03.17.) (PR#351)**
by @krasznaa, no assignee, merged on 2023-03-20
-  **Data Directory Re-Design, main branch (2023.03.20.) (PR#353)**
by @krasznaa, no assignee, merged on 2023-03-21
-  **Add concurrency group for 'build' CI jobs (PR#356)**
by @stephenswat, no assignee, merged on 2023-03-21
-  **Implement warp ballot sync with indexing in CUDA (PR#346)**
by @stephenswat, no assignee, merged on 2023-03-22
-  **Thrust System Includes, main branch (2023.03.22.) (PR#360)**
by @krasznaa, no assignee, merged on 2023-03-22
-  **SYCL and Build Updates, main branch (2023.03.23.) (PR#362)**
by @krasznaa, no assignee, merged on 2023-03-23















acts-project/traccc: PRs merged between 2023-03-10 and 2023-03-25 III

-  **Fix comment in device triplet (PR#365)**
by [@guilhermeAlmeida1](#), no assignee, merged on 2023-03-24











acts-project/traccc: Open PRs I

-  **Add Spack development environment specification (PR#364)**
by @stephenswat,  **no assignee**, updated on 2023-03-24
-  **Add CUDA Track Finding Algorithm based on CKF (PR#352)**
by @beomki-yeo,  **no assignee**, updated on 2023-03-24
-  **CMake Export Fix, main branch (2023.03.24.) (PR#367)**
by @krasznaa,  **no assignee**, updated on 2023-03-24
-  **Change CPU clustering to use flat (alt) edm (PR#361)**
by @guilhermeAlmeida1,  **no assignee**, updated on 2023-03-24
-  **Update to Detray v26 (PR#358)**
by @beomki-yeo,  **no assignee**, updated on 2023-03-24
-  **Add ability to import CMake target for covfie (PR#363)**
by @stephenswat,  **no assignee**, updated on 2023-03-24
-  **Profiler (PR#366)**
by @Xola101,  **no assignee**, updated on 2023-03-24








acts-project/traccc: Open PRs II

-  **Data Update, main branch (2023.03.22.) (PR#359)**
by @krasznaa,  **no assignee**, updated on 2023-03-23
-  **WIP: Change sycl chain to use async copying and an ordered queue (PR#357)**
by @guilhermeAlmeida1,  **no assignee**, updated on 2023-03-21
-  **Implement near-transparent layout-swappable arrays (PR#348)**
by @stephenswat,  **no assignee**, updated on 2023-03-17
-  **Implement CUDA block- and warp-wide odd-even sort (PR#347)**
by @stephenswat,  **no assignee**, updated on 2023-03-17
-  **Throughput Measurement Scripting, main branch (2023.03.11.) (PR#344)**
by @krasznaa,  **no assignee**, updated on 2023-03-17
-  **Alternative CUDA implementation of seed finding (PR#230)**
by @stephenswat,  **no assignee**, updated on 2023-03-17
-  **Implement and test a CUDA version of the module map (PR#154)**
by @stephenswat,  **no assignee**, updated on 2023-03-17




acts-project/traccc: Open PRs III

-  **ci: Add basic GPU CI (PR#237)**
by @paulgessinger,  **no assignee**, updated on 2023-01-25
-  **MPS benchmarking scripts and test workflow (PR#244)**
by @Chamodya-ka,  **no assignee**, updated on 2023-01-25
-  **added mps script tests (PR#255)**
by @Chamodya-ka,  **no assignee**, updated on 2023-01-25
-  **Add infrastructure for CUDA graph algorithms (PR#307)**
by @stephenswat,  **no assignee**, updated on 2023-01-25
-  **Implement CUDA spacepoint formation with flat EDM (PR#158)**
by @stephenswat,  **no assignee**, updated on 2022-04-01















acts-project/detray: PRs merged between 2023-03-10 and 2023-03-25 |

-  **ref: move surface vector into sf finder store (PR#367)**
by @niermann999, no assignee, merged on 2023-03-10
-  **Set surface link in 'parameter_transporter' instead of 'parameter_resetter' (PR#408)**
by @beomki-yeo, no assignee, merged on 2023-03-11
-  **Fix a bug in material unit test (PR#409)**
by @beomki-yeo, no assignee, merged on 2023-03-13
-  **ref!: Add config to track generators and split the header (PR#403)**
by @niermann999, no assignee, merged on 2023-03-14
-  **Add an aborter to propagate only one surface (PR#410)**
by @beomki-yeo, no assignee, merged on 2023-03-15
-  **perf: Optimize propagation benchmark kernel launch (PR#414)**
by @stephenswat, no assignee, merged on 2023-03-20
-  **perf: Remove Thrust calls inside kernels (PR#412)**
by @stephenswat, no assignee, merged on 2023-03-22











acts-project/detray: PRs merged between 2023-03-10 and 2023-03-25 II

-  **feat: openMP support to CPU benchmark (PR#417)**
by [@niermann999](#), no assignee, merged on 2023-03-22
-  **Fix typo in 'nlohmann_json' CMake config :rat: (PR#418)**
by [@stephenswat](#), no assignee, merged on 2023-03-23
-  **CMake Export Fix, main branch (2023.03.24.) (PR#419)**
by [@krasznaa](#), no assignee, merged on 2023-03-24


acts-project/detray: Open PRs I

-  Refer to 'nlohmann_json' target by namespace (PR#420)
by @stephenswat,  **no assignee**, updated on 2023-03-24
-  feat: portal cylinder intersector (PR#411)
by @niermann999,  **no assignee**, updated on 2023-03-23
-  feat: Implement 'detray::tuple' (PR#415)
by @stephenswat,  **no assignee**, updated on 2023-03-23
-  feat: Add cpu propagation benchmarks that use openMP (PR#404)
by @niermann999,  **no assignee**, updated on 2023-03-22
-  feat: Add throughput to propagation benchmarks (PR#413)
by @stephenswat,  **no assignee**, updated on 2023-03-18
-  feat: Enable reading of a solenoid field map in the toy geometry (PR#399)
by @niermann999,  **no assignee**, updated on 2023-03-09
-  feat: stepper print inspector (PR#402)
by @niermann999,  **no assignee**, updated on 2023-03-02





acts-project/detray: Open PRs II

-  **feat: surface barcode (PR#368)**
by @niermann999,  **no assignee**, updated on 2023-02-16
-  **feat: material builders (PR#364)**
by @niermann999,  **no assignee**, updated on 2023-01-17
-  **ref: Add new stepper policy and benchmark it (PR#327)**
by @niermann999,  **no assignee**, updated on 2022-11-10
-  **Volume radiation length (PR#328)**
by @beomki-yeo,  **no assignee**, updated on 2022-10-26
-  **add vecpar example (PR#235)**
by @georgi-mania,  **no assignee**, updated on 2022-07-13





acts-project/vecmem: PRs merged between 2023-03-10 and 2023-03-25 |

-  **Public Header Tests, main branch (2023.03.03.) (PR#222)**
by [@krasznaa](#), no assignee, merged on 2023-03-17



acts-project/vecmem: Open PRs I

-  **(Resizable) Vector Buffer Update, main branch (2023.03.17.) (PR#224)**
by @krasznaa,  **no assignee**, updated on 2023-03-17
-  **[WIP] Add cms caching cuda allocator (PR#79)**
by @cgleggett,  **no assignee**, updated on 2021-04-28

acts-project/algebra-plugins: PRs merged between 2023-03-10 and 2023-03-25 |

-  **Replaced casts to 'void' with the '[[maybe_unused]]' attribute. (PR#94)**
by [@wermos](#), no assignee, merged on 2023-03-11
-  **'actor' member functions marked as 'const' (PR#93)**
by [@wermos](#), no assignee, merged on 2023-03-11
-  **Added Fastor as a full backend and frontend. (PR#78)**
by [@wermos](#), no assignee, merged on 2023-03-15
-  **CMake Export Fix, main branch (2023.03.24.) (PR#96)**
by [@krasznaa](#), no assignee, merged on 2023-03-24

acts-project/algebra-plugins: Open PRs I

-  **feat: SoA layout for vector (PR#95)**
by @niermann999,  **no assignee**, updated on 2023-03-18