Pull request and issue summary for acts-project/acts

July 30, 2024

acts-project/acts: PRs merged between 2024-07-23 and 2024-07-30 I

- ▶ build: Remove extra minimum cmake versions, set policies (#3398) by @paulgessinger, ✓ reviewed by @andiwand, merged on 2024-07-23
- Image: book of the second s
- Fix: 'VectorTrackContainer::removeTrack_impl' (#3427) by @andiwand, reviewed by @paulgessinger, merged on 2024-07-23
- ▶ hore refactor: Single tree for 'RootMeasurementWriter' (#3417) by @andiwand, reviewed by @paulgessinger, merged on 2024-07-23
- ► fix(sonar): move/forward, avoid slicing, noexcept destructors (#3396) by @paulgessinger, ✓ reviewed by @andiwand, merged on 2024-07-23
- ▶ feat: Add 'TrackProxy::shallowCopy' (#3428) by @paulgessinger, ✓ reviewed by @andiwand, merged on 2024-07-23
- is ci: Add unit test seed filter objects part 1 (#3402) by @CarloVarni, V reviewed by @andiwand, merged on 2024-07-23
- ▶ feat: 'TruthVertexSeeder' for Examples (#3364) by @andiwand, ✓ reviewed by @paulgessinger, merged on 2024-07-24

acts-project/acts: PRs merged between 2024-07-23 and 2024-07-30 II

- Feat: adding sympy stepper to python bindings (#3433) by @asalzburger, reviewed by @andiwand, merged on 2024-07-24
- i: Re-enable Exa. TrkX builds (#3431) by @benjaminhuth, reviewed by @andiwand, merged on 2024-07-24
- ► fix: Improve CKF error handling and fix path limit abortion (#3436) by @andiwand, reviewed by @paulgessinger, merged on 2024-07-25
- ▶ ∱∞ feat: Reverse track finding for Examples (#3200) by @andiwand, ✓ reviewed by @noemina, merged on 2024-07-25
- For refactor: Remove 'lastHierarchySurfaceReached' from 'Navigator' (#3237) by @andiwand, reviewed by @noemina, merged on 2024-07-25
- Image: by Candiwand, Image: Constraint of the second se
- ► fix: Correct handling of outliers and holes for track statistics (#3438) by @andiwand, ✓ reviewed by @timadye, merged on 2024-07-27

acts-project/acts: PRs merged between 2024-07-23 and 2024-07-30 $\,$ III

- For feat: Prototracks-to-Tracks converter & refactor (#3357) by @benjaminhuth, reviewed by @andiwand, merged on 2024-07-29
- ► fix: Handle holes after measurement selection in Core CKF (#3413) by @andiwand, reviewed by @timadye, merged on 2024-07-29
- Fix: fix proto layer range for straw surfaces (#3443) by @XiaocongAi, reviewed by @asalzburger, merged on 2024-07-29
- Image: Section Section Section 10 (#3410)
 Image: Section Section Section 10 (#3410)
 Image: Section Section 10 (#3410)
 Image: Section 10 (#341
- ► fix: Next round of RefittingAlgorithm fixes and hash checks (#3430) by @benjaminhuth, V reviewed by @andiwand, merged on 2024-07-30
- For refactor: Disable copy&move for 'TrackStateType' (#3451) by @andiwand, reviewed by @timadye, merged on 2024-07-30
- Image: Section of the section of

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- ▶ î fix: Remove residual mentions of C++17 (#3455) by @stephenswat, ✓ reviewed by @andiwand, updated on 2024-07-30
- fix: External surfaces for the Gen2 navigation (#3454) by @ssdetlab, <u>no reviewer</u>, updated on 2024-07-30
- feat: Making TestSourceLink compatible with both geometry Gens (#3445) by @ssdetlab, Comment by @ssdetlab, updated on 2024-07-30
- feat: GeoShapes to DetectorVolumes and GeoMaterial Converters (#3268) by @Matthewharri, comment by @Matthewharri, updated on 2024-07-30
- In refactor: change the definition of the rotation parameters (#2021) by @XiaocongAi, a comment by @XiaocongAi, updated on 2024-07-30
- feat: Hashing seeding algorithm (#3148) by @CouthuresJeremy, Comment by @andiwand, updated on 2024-07-29
- ▶ î feat!: (fix + chore) streamline nSegments usage (#3419) by @asalzburger, ♥ comment by @asalzburger, updated on 2024-07-29
- feat: Telescope style seeding (#3300) by @ssdetlab, comment by @ssdetlab, updated on 2024-07-28

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- feat: traccc plugin (conversion) (#3281) by @fredevb, comment by @paulgessinger, updated on 2024-07-28
- Stale fix: update the DD4hep requirements when the ODD is built (#3330) by @Corentin-Allaire, comment by @Corentin-Allaire, updated on 2024-07-28
- ▶ î fix: detray plugin (cmake flags, Cl, and compile errors) (#3363) by @fredevb, ✓ comment by @EleniXoch, updated on 2024-07-27
- ▶ 1 feat: covfie plugin (#3117) by @fredevb, ✓ comment by @paulgessinger, updated on 2024-07-27
- fix(gx2f): constrain update to initial volume (#3411) by @AJPfleger, comment by @andiwand, updated on 2024-07-26
- ▶ î feat: speed up detector navigator (#3435) by @asalzburger, ✓ reviewed by @andiwand, updated on 2024-07-25
- feat!: Track-EDM like implementation for the space points, to be used in the seeding (#3432) by @CarloVarni, no reviewer, updated on 2024-07-24
- feat: Introduce the usage of the geomodel converters for the Muon System (#3348) by @dimitra97, and comment by @dimitra97, updated on 2024-07-24

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- Sinci: Reenable some ExaTrkX tests (#3395) by @benjaminhuth, no reviewer, updated on 2024-07-23
- In refactor: Bump min json ver, make json keys static (#2968) by @paulgessinger, no reviewer, updated on 2024-07-23
- In refactor: Lift GenericDetector to a Plugin (#3425) by @benjaminhuth,review requestedreview requested, updated on 2024-07-22
- Stale style: Update clang-format to v18 (#3319) by @stephenswat, no reviewer, updated on 2024-07-21
- feat: traccc chain in examples (common chain logic and CPU chain) (#3320) by @fredevb, no reviewer, updated on 2024-07-16
- Stale feat: Misalignment shift and test check that only selected modules are shifted (#2843) by @LaraCalic, Comment by @paulgessinger, updated on 2024-07-15
- In refactor: Move MLAmbiguitySolver to Core (#3272) by @Corentin-Allaire, no reviewer, updated on 2024-07-11
- Stale feat: Geometry agnostic space point maker (#2890) by @Alon114, no reviewer, updated on 2024-07-06

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- refactor: path handling to use 'std::filesystem' (#3308) by @AJPfleger, X changes requested by @stephenswat, updated on 2024-07-06
- Stale feat: introduction obj simhit writer (#3180) by @asalzburger, no reviewer, updated on 2024-06-15
- feat: Build ITk with Gen1 geometry and geomodel (#3448) by @benjaminhuth, or comment by @benjaminhuth, updated on 2024-07-30
- Mile WIP refactor: Rework projector (#3453) by @andiwand, Comment by @goetzgaycken, updated on 2024-07-30
- Image: WIP refactor: Rework initial 'qOverP' sigma in Examples (#3422) by @andiwand, no reviewer, updated on 2024-07-30
- Image: WIP feat: Use track particle double matching by default in Examples (#3409) by @andiwand, no reviewer, updated on 2024-07-30
- ► ↑ WIP feat: Variable size measurement for Examples (#3107) by @andiwand, ✓ comment by @andiwand, updated on 2024-07-30

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- 1 im WIP feat: Add CMake presets (#3135)
 - by @andiwand, 🏹 comment by @andiwand, updated on 2024-07-30
- Minimize WIP fix: Skip outliers in 'GreedyAmbiguityResolution' (#3452) by @andiwand, no reviewer, updated on 2024-07-29
- **•** 1 will be example of LRT (#3446)
 - by @AichaMattouhi, 🌠 comment by @delitez, updated on 2024-07-29
- Multiple Statistics to propagation (#3450) by @andiwand, Comment by @paulgessinger, updated on 2024-07-29
- In WIP refactor!: Decouple navigation and stepping (#3449) by @andiwand, no reviewer, updated on 2024-07-28
- More than the second sec
- Similar WIP feat: Renavigation for Gen1 (#3437) by @andiwand, no reviewer, updated on 2024-07-27

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- In WIP refactor: Remove 'forceIntersectBoundaries' from 'Navigator' (#3238) by @andiwand, Comment by @noemina, updated on 2024-07-26
- Image: WIP test: Check if we end up in the expected volume in Gen1 'Navigator' (#3442) by @andiwand, no reviewer, updated on 2024-07-26
- Image: WIP refactor!: Template algorithms on track container frontend 'TrackContainer' (#3193) by @andiwand, comment by @paulgessinger, updated on 2024-07-25
- Image: WIP refactor: Remove target volume estimation from 'Navigator' (#3242) by @andiwand, no reviewer, updated on 2024-07-24
- Stale feat(gx2f): material effects multiple scattering (#3292) by @AJPfleger, no reviewer, updated on 2024-07-23
- by @EleniXoch, no reviewer, updated on 2024-07-23
- Image: WIP refactor: Keep outliers and material states at the end of track in Core CKF (#3391) by @andiwand, no reviewer, updated on 2024-07-23

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- Image: WIP feat: Added possibility to keep intermediate particles from PythiaGenerator WIP (#3414) by @pbutti, no reviewer, updated on 2024-07-23
- Image: WIP refactor: add geohook for fast digitization range selection to itk example (#2089) by @niermann999, no reviewer, updated on 2024-07-23
- Stale refactor!: Surface returns transform by value (#2527) by @asalzburger, no reviewer, updated on 2024-07-22
- Stale refactor: Some internal GSF refactorings (#2697)
 by @benjaminhuth, X changes requested by @andiwand, updated on 2024-07-21
- Image: WIP refactor: physmon: enlarge etaRange for GX2F to match KF settings (#3412) by @AJPfleger, no reviewer, updated on 2024-07-18
- Image: WIP refactor: Move config files from ODD to Acts to ensure compatibility (#3407) by @benjaminhuth, no reviewer, updated on 2024-07-18

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- Image: WIP refactor: Rework physics performance monitoring for Examples (#3359) by @andiwand, no reviewer, updated on 2024-07-18
- In WIP build: physmon for traccc chains (host and cuda) (#3403) by @fredevb, A no reviewer, updated on 2024-07-17
- Image: WIP feat: traccc cuda example (#3372) by @fredevb, no reviewer, updated on 2024-07-17
- fix(gx2f): use all states for 'jacobianFromStart' (#3274) by @AJPfleger, no reviewer, updated on 2024-07-12
- Stale feat: Add per event timing (#3124)
 by @CouthuresJeremy, comment by @andiwand, updated on 2024-07-11
- Stale feat: Add GSF component momentum cut to stabilize fit (#2661) by @benjaminhuth, volument by @benjaminhuth, updated on 2024-05-25

acts-project/acts: Issues opened since 2024-07-23 |

- GlobalChiSquareFitter' produces parameters in wrong volume (#3444) by @andiwand, updated on 2024-07-25
- (*) 'MultiEigenStepperLoop' returns position not on surface while components are (#3441) by @andiwand, updated on 2024-07-25

acts-project/acts: New stale Issues / PRs since 2024-07-23 I

- Stale fix: update the DD4hep requirements when the ODD is built (#3330) by @Corentin-Allaire, no reviewer, updated on 2024-07-28
- Stale feat(gx2f): material effects multiple scattering (#3292) by @AJPfleger, no reviewer, updated on 2024-07-23
- Stale Provide tools & setup for tracking of Heavy Ion on ITk events in standalone ACTS environment (#1778)
 by @tboldagh, updated on 2024-07-24

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- Stale fix: update the DD4hep requirements when the ODD is built (#3330) by @Corentin-Allaire, no reviewer, updated on 2024-07-28
- Stale Provide tools & setup for tracking of Heavy Ion on ITk events in standalone ACTS environment (#1778) by @tboldagh, updated on 2024-07-24
- Stale feat(gx2f): material effects multiple scattering (#3292) by @AJPfleger, no reviewer, updated on 2024-07-23
- Stale refactor!: Surface returns transform by value (#2527) by @asalzburger, no reviewer, updated on 2024-07-22
- Stale refactor: Some internal GSF refactorings (#2697) by @benjaminhuth, no reviewer, updated on 2024-07-21
- Stale style: Update clang-format to v18 (#3319) by @stephenswat, no reviewer, updated on 2024-07-21
- Stale feat: Misalignment shift and test check that only selected modules are shifted (#2843) by @LaraCalic, no reviewer, updated on 2024-07-15

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- Stale feat: Add per event timing (#3124) by @CouthuresJeremy, no reviewer, updated on 2024-07-11
- Stale feat: Geometry agnostic space point maker (#2890) by @Alon114, no reviewer, updated on 2024-07-06
- Stale Project build flags are difficult to control (2024.05.29.) (#3231) by @krasznaa, updated on 2024-07-04
- Stale [bug] Off axis endcap with dd4hep plugin. (#942) by @whit2333, updated on 2024-06-26
- Stale Debug Information in Acts Seeder (#944) by @osbornjd, updated on 2024-06-26
- Stale Reproducibility test using hash checks for non-linear KF (#1246) by @paulgessinger, updated on 2024-06-25
- Stale Documentation update: Core (#1418) by @paulgessinger, updated on 2024-06-25
- Stale Documentation: hints for debugging (#1463) by @timadye, updated on 2024-06-25

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- Stale Add Primary Vertex Label to tracks (#1544) by @Lucas-Borgna, updated on 2024-06-25
- Stale Create volume restricted BFieldMap (#1659) by @asalzburger, updated on 2024-06-25
- Stale Cmake error if ACTS_BUILD_PLUGIN_ACTSVG=ON (#1818) by @DraTeots, updated on 2024-06-25
- Stale LCG compatibility (#2054) by @paulgessinger, updated on 2024-06-25
- Stale EstimateTrackParamsFromSeed does not use time of measurement (#2136) by @andiwand, updated on 2024-06-25
- Stale Construct tracking geometry from python (#2173) by @andiwand, updated on 2024-06-25
- Stale Missing 'cmake_minimum_required' in 'ActsConfig.cmake.in' (#2216) by @andiwand, updated on 2024-06-25
- Stale Bug: not all tracks have fittedMomentum (#2364) by @felix-russo, updated on 2024-06-25

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- Stale Bug: AMVF 'deleteLastVertex' might be wrong (#2380) by @andiwand, updated on 2024-06-25
- Stale [Bug] Fatras can't seem to handle energy loss for electrons on thin surfaces (#2498) by @janheinri, updated on 2024-06-25
- Stale [Feature Request] Padding utility for field map in case tracking volume is larger than a given field map (#2523) by @janheinri, updated on 2024-06-25
- Stale Bug: Fatras sets step size to 0 (#2543) by @andiwand, updated on 2024-06-25
- Stale Ensure Fitters use all provided measurements (#2737) by @andiwand, updated on 2024-06-25
- Stale bug: KF verbosity statement (#3097) by @osbornjd, updated on 2024-06-20
- ► \$\int Stale feat: introduction obj simhit writer (#3180) by @asalzburger, ↑ no reviewer, updated on 2024-06-15

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- Stale EDM Memory usage (#1516) by @paulgessinger, updated on 2024-05-25
- Stale Detailed timing per event (#1700) by @CouthuresJeremy, updated on 2024-05-25
- Stale feat: Add GSF component momentum cut to stabilize fit (#2661) by @benjaminhuth, no reviewer, updated on 2024-05-25
- Stale Question: Set a different value of eta range using ODD (#2776) by @rubihason, updated on 2024-05-25
- Stale Write Fatras documentation (#2796) by @andiwand, updated on 2024-05-25
- Stale bug: documentation always builds in '<source>' (#2798) by @AJPfleger, updated on 2024-05-25
- Stale bug: IVF is throwing errors in ODD full chain (#3120) by @andiwand, updated on 2024-05-18
- Stale Documentation on geometry misalignments (#2940) by @paulgessinger, updated on 2024-05-17

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- Stale Bug: material map auto tuning only considers the "Default" mapping type (#2942) by @plariono, updated on 2024-05-17
- Stale bug: some dependencies in setup script wrong (#3014) by @AJPfleger, updated on 2024-05-17
- Stale perf: CKF measurement selector runs after track state creation (#3081) by @andiwand, updated on 2024-05-05
- Stale perf: CKF general (#3082) by @andiwand, updated on 2024-05-05
- Stale Some 'toStream' implementations change the state of 'std::ostream' (#3079) by @andiwand, updated on 2024-05-04
- Stale HepMC plugin looks incomplete (#3050) by @andiwand, updated on 2024-04-26
- Stale 'EigenStepper' (and extensions) cannot be easily extended for dense environment covariance transport (#2868) by @andiwand, updated on 2024-03-20
- Stale 'Stepper' and 'Navigator' cannot be configured by 'PropagatorOptions' (#2861) by @andiwand, updated on 2024-02-09

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- Stale Fitters use 'PropagatorPlainOptions' and not 'PropagatorOptions' (#2862) by @andiwand, updated on 2024-02-09
- Stale 'AdaptiveGridTrackDensity' has a hidden 'd0' cut (#2840) by @andiwand, updated on 2024-01-17
- Stale Duplication in 'AdaptiveGridTrackDensity' and 'GaussianGridTrackDensity' (#2841) by @andiwand, updated on 2024-01-17
- Stale EDM4hep parameter conversion should use jacobians directly (#2813) by @paulgessinger, updated on 2024-01-11
- Stale 'Surface::boundToFreeJacobian' could also use 'FreeVector' parameters (#2810) by @andiwand, updated on 2024-01-10
- Stale Telescope detector cookbook (#2800) by @paulgessinger, updated on 2024-01-10
- Stale Write CKF documentation (#2794) by @paulgessinger, updated on 2024-01-10

• • Stale Add description of Blueprint tree and how it can be used to create layerless detector. (#2785)

by @paulgessinger, updated on 2024-01-10

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- Stale Describe replacements of TrackingGeometry, TrackingVolume etc and how the classes map to one another. (#2786)
 by @paulgessinger, updated on 2024-01-10
- Stale Describe how the legacy geometry used to work and how it differs from the layerless geometry (#2787) by @paulgessinger, updated on 2024-01-10
- Stale 'SurfaceReached' aborter is messing with the step size (#2738) by @andiwand, updated on 2023-12-28
- Stale Propagation state cannot be initialized outside the propagation (#2736) by @andiwand, updated on 2023-12-28
- Stale FPE: AMVF keepNewVertex (#2590) by @andiwand, updated on 2023-11-26
- Stale Track finding rework (#2320) by @paulgessinger, updated on 2023-11-11

Stale Propagator step count limit reached and Step size adjustment exceeds maximum trials (#2469)

by @CarloVarni, updated on 2023-11-11

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Stale [Feature Request] Reference surface for tracking algorithm is hardcoded to be at origin (#2525)

by @janheinri, updated on 2023-11-09

- Stale Incorrect material interaction in backward propagation ? (#2429) by @Corentin-Allaire, updated on 2023-10-06
- Stale Expand TrackingGeometry building from DD4hep with user given input (#2403) by @asalzburger, updated on 2023-09-27
- Stale FPE: Bethe-Heithler gamma_distribution (#2346) by @paulgessinger, updated on 2023-09-03
- Stale FPE: GaussianMixtureReduction (#2347) by @paulgessinger, updated on 2023-09-03
- Stale FPE: RootTrajectoryStatesWriter (#2348) by @paulgessinger, updated on 2023-09-03
- Stale FPE: RootTrajectorySummaryWriter (#2284) by @paulgessinger, updated on 2023-08-12
- Stale Inconsistent use of 'VolumeMaterialInteraction' thickness (#2279) by @andiwand, updated on 2023-08-05

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- Stale Move some Digitization code from FATRAS to Core? (#2230) by @benjaminhuth, updated on 2023-07-28
- Stale MultiTrajectory buffer default constructible (#2154) by @tboldagh, updated on 2023-07-20
- Stale Track nDoF only returns the sum of calibrated size and not the actual DoFs. (#2076) by @pbutti, updated on 2023-06-22
- Stale Track parameter estimation algorithm return parameter on the first seed SP surface (#2037)

by @Corentin-Allaire, updated on 2023-05-25

- Stale Expose individual steps of track reconstruction in full_chain python scripts (#1997) by @tboldagh, updated on 2023-05-20
- Stale Different results for full_chain_itk when running locally vs lxplus (#1819) by @CarloVarni, updated on 2023-05-09
- Stale Bug: Probable Issues in Bevelled Cylinder Implementation (#1238) by @rahmans1, updated on 2023-05-09
- Stale Physmon throws many WARNINGs on Bethe-Heitler approximation (#1748) by @paulgessinger, updated on 2023-05-09

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- Stale SpacePoint EDM design (#1971) by @CarloVarni, updated on 2023-05-09
- Stale vertex fitting and duplicate tracks (#1992) by @rubihason, updated on 2023-05-09
- Stale Estimate Track Parameters from Seeds use only one surface. What about strips? (#1895) by @CarloVarni, updated on 2023-05-09
- Stale Bug: Unpredicatable navigation in layer with overlapping surface (#1852) by @Corentin-Allaire, updated on 2023-03-25
- Stale Make central minimum track momentum threshold (#1761) by @paulgessinger, updated on 2023-01-21
- Stale Optimal seeding parameters for a detector (#1699) by @CouthuresJeremy, updated on 2023-01-05
- Stale Particle smearing assertion with Geant4 (#1603) by @benjaminhuth, updated on 2022-12-21
- Stale Documentation update: Examples (#1420) by @paulgessinger, updated on 2022-11-23

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- Stale Documentation update: How-to (core) (#1422) by @paulgessinger, updated on 2022-11-23
- Stale Documentation update: Plugins (#1421) by @paulgessinger, updated on 2022-10-22
- Stale Vertexing produces vertex candidates that are unreasonable (#1361) by @paulgessinger, updated on 2022-10-22
- Stale Optionally have the vertex finding recalculate perigee parameters relative to consistent reference (#1482)
 by @paulgessinger, updated on 2022-10-01
- Stale Full chain vertexing with AMVF (#1406) by @paulgessinger, updated on 2022-10-01
- Stale Vertexing produces unexpectedly poor efficiency (#1362) by @paulgessinger, updated on 2022-09-20
- Stale Ambiguous perigees with low momentum (#1386) by @andiwand, updated on 2022-09-20
- Stale Fatras: Bethe-Heitler calculation wrong? (#1437) by @asalzburger, updated on 2022-09-20

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- Stale Some writers performs their writes in the destructor (#881) by @paulgessinger, updated on 2022-08-11
- Stale Vertexing issues observed in python vertexing example (#1091) by @paulgessinger, updated on 2022-08-11
- Stale Magnetic Field Storage (#1239) by @osbornjd, updated on 2022-06-12
- Stale Cut tube segment dd4hep conversion tests (#1146) by @rahmans1, updated on 2022-05-25
- Stale Bug: issue on first build after DD4hep update on system with globaly installed acts (#1139)

by @gagnonlg, updated on 2022-02-22

- Stale Add example (+test) for vertex fitting with constraints (#1100) by @paulgessinger, updated on 2022-01-07
- Stale Should seed finding tools have a higher-level interface? (#988) by @stephenswat, updated on 2021-11-25
- Stale Improvement: Estimate track parameters from seed at perigee surface (#1036) by @XiaocongAi, updated on 2021-11-10

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- Stale Tracking for TPC/DC without surfaces (#165) by @FabianKlimpel, updated on 2021-11-04
- Stale BoundingBox tests fail on double precision (#752) by @paulgessinger, updated on 2021-11-04