

STT Kalman Filter

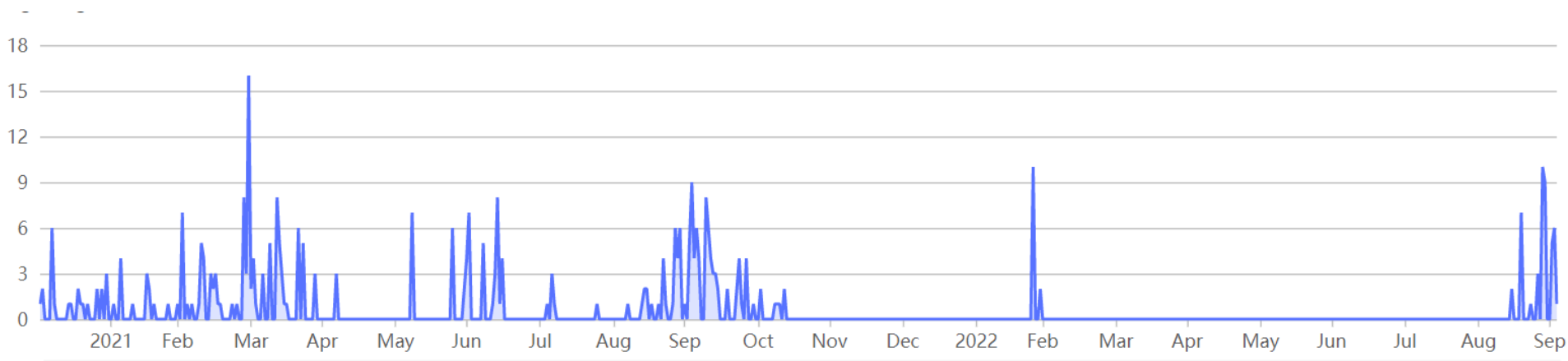
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Activity on repository

- Repository: baltig.infn.it/dune/STTTrackReco
- Start: beginning of 2021
- «Best effort» development
- Keep things simple and proceed step by step



STT Digits Clustering

- Time of the interaction is assumed to be known
- Reconstruct radius for hit straw tubes (digits)
- Clusterize adjacent hit straw tubes

Preliminary Reconstruction

- For each cluster, reconstruct particle position and direction in the STT plane
- Take the most distant tubes in the cluster
- Evaluate common tangents
(of the reconstructed circles)
- Take the best one according to a likelihood
- Optionally t (time of particle crossing) can be a parameter of the likelihood

Kalman Filter

- Use cluster parameters as input for Kalman Filter
- Track parameterization: $x, y, \frac{1}{\tilde{R}}, \tan \lambda, \phi$
- Track model: helix
- Measurements: x, θ_x or y, θ_y
- Energy loss and MCS taken into account

Status

- Code compile and run
- Checks are ongoing