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## A First Level Track Trigger for ATLAS at Super-LHC

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The proposed luminosity upgrade of the Large Hadron Collider, the Super-LHC, will tenfold the luminosity to  $10^{35} \text{cm}^{-2} \text{s}^{-1}$  to increase the LHC discovery potential for new heavy particles and to allow for statistics limited precision measurements of possibly discovered particles. Due to the increased luminosity the ATLAS and CMS experiments have to deal with hundreds of events per collision challenging especially the tracking and the trigger capabilities.

To maintain the output rate of the first trigger level both collaborations consider to integrate a new track trigger operating already at the first trigger level. The track triggers will exploit information from the pixel and silicon strip detectors and provide track candidates. The tracks can then be combined with information from the calorimeters and the muon detectors to form a L1 decision.

The timing requirements of the first trigger levels put severe constraints on the frontend and trigger electronics. A well established reconstruction technique is the fast hardware lookup for identifying track patterns. We will discuss possible lookup implementations using Content Addressable Memories, which provide pattern recognition matches with large memory space at high frequency. We report estimates on the number of track patterns based on the upgraded ATLAS detector design, depending on the number of used layers and the minimum transverse momentum of tracks.

**Primary author:** Mr SCHMITT, Sebastian (Physikalisches Institut Heidelberg)

**Co-author:** Prof. SCHÖNING, Andre (Physikalisches Institut Heidelberg)

**Presenter:** Mr SCHMITT, Sebastian (Physikalisches Institut Heidelberg)

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