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## NOVEL TIME-DEPENDENT ALIGNMENT OF THE ATLAS INNER DETECTOR IN THE LHC RUN II

ATLAS is a multipurpose experiment at the LHC proton-proton collider. Its physics goals require high resolution, unbiased measurement of all charged particle kinematic parameters. These critically depend on the layout and performance of the tracking system and the quality of its offline alignment.

For the LHC Run II, the system has been upgraded with the installation of a new pixel layer, the Insertable B-layer (IBL). ATLAS Inner Detector Alignment framework has been adapted and upgraded to correct very short time scale movements of the sub-detectors. An outline of the track based alignment approach and its implementation within the ATLAS software will be introduced.

Special attention will be paid to describe the techniques allowing to pinpoint and eliminate track parameters biases due to alignment. In particular, a mechanical distortion of the IBL staves up to 20um has been observed during data-taking. The techniques used to correct for this effect and to match the required Inner Detector performance will be presented.

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