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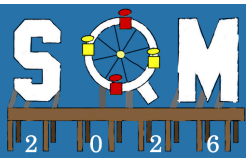

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The ALICE Inner Tracking System 3, a bent wafer-scale monolithic active pixel detector

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ALICE will commission the Inner Tracking System 3 (ITS3), replacing the three innermost layers of the existing vertex spectrometer during the Long Shutdown 3 (2026-30) of the LHC at CERN. It will consist of six truly cylindrical, bent, wafer-scale monolithic active pixel sensors based on the TPSCo 65 nm technology. ITS3 will have a low material budget (0.09% X0 per layer) and the innermost layer will be closer to the interaction point (19 mm). This will ensure an improvement in pointing resolution by a factor of two at very low pT (O(100 MeV/c)), achieving, for example, 20 μm and 15 μm in the transversal and longitudinal directions, respectively, for 1 GeV/c particles. After the initial R&D qualified the technology and validated the feasibility of the detector concept, the first full scale prototype, MOSAIX, is being fabricated. The mechanics and the off-detector electronic developments are proceeding towards their completion.

This contribution will review the conceptual design, the current activities and road to completion and installation. It concludes with a projection of the improved physics performance, in particular for heavy flavour mesons and baryons, as well as for thermal dielectrons, which will be accessible with ITS3.

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