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Absolute Luminosity calibration in pp collisions at $\sqrt{s} = 900$ GeV in the ATLAS experiment

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At the LHC, the absolute accuracy of the luminosity scale and its precision can be a limiting factor in terms of systematic uncertainty for some measurements such as that of the total proton-proton scattering cross-section. This report presents the calibration of the ATLAS luminometers by the van der Meer method in pp collisions at $\sqrt{s} = 900$ GeV, during dedicated data-taking periods in late 2018 devoted to elastic and total cross-section measurements at that center-of-mass energy. After outlining the overall luminosity-calibration methodology and detailing the fitting procedure of the luminosity-scan curves, the presentation focuses on the characterization and the mitigation of the potential systematic biases that may affect this calibration. The resulting preliminary uncertainty on the absolute luminosity scale during these running periods lies in the 1-2 % range.

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