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Gravitational lensing flexion measurements in the Hubble Frontier Fields

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Flexion is the second order weak gravitational lensing effect which is responsible for the arclike appearance of lensed sources. Its strong signal in the intermediate regime and the orthogonality to the weak lensing shear field make flexion an ideal complement to today's gravitational lensing measurements. Furthermore, its high sensitivity to local density peaks makes it a great tool for detecting substructure and thus for constraining the halo mass function. This could potentially distinguish cold and warm dark matter scenarios. However, flexion measurements have proved to be difficult up to now. The high quality of the *Hubble Frontier Fields*, a major observing program with the *Hubble Space Telescope* to provide unprecedented deep observations of 6 strong lensing clusters, makes this data set a prime target for flexion measurements. We present an automated measurement pipeline and substructure constraints from its application to the clusters MACSJ0416.1-2403 and Abell 2744.

Primary author: Mr REXROTH, Markus (EPFL - EPF Lausanne)

Co-author: Prof. KNEIB, Jean-Paul (EPFL)

Presenter: Mr REXROTH, Markus (EPFL - EPF Lausanne)

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