The NIRSpec Calibration Concept

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Abstract.

NIRSpec is the main near-infrared spectrograph on board the James Webb Space Telescope, a segmented off-axis telescope in deep space. Besides the traditional ‘fixed slits’ for long-slit spectroscopy, NIRSpec offers both integral field unit and multi-object spectroscopy capabilities. The highest level of multiplexing is provided by the Micro-Shutter Array, a fixed grid of micro-shutters allowing up to 100 objects to be observed simultaneously over a large field of view (10' square) and over nearly a factor of 10 in wavelength, since NIRSpec’s detector response ranges from 0.6 to 5 micron. The combination of these factors results in a number of unique challenges for an efficient calibration of the instrument. In this paper we present a high-level description of the calibration and outline some of the challenges that it entails.