Detector Modelling Workshop 2021 (DeMo)



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Non-linear effects in H4RG-10 detectors

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The Nancy Grace Roman Telescope is an upcoming NASA observatory that will investigate the origins of cosmic acceleration using weak gravitational lensing (WL). WL induces percent-level distortions in galaxy shapes, and accurate WL measurements are highly sensitive to the point-spread function (PSF). Thus, it is essential to characterize detector effects, particularly nonlinear behaviors that may impact the PSF such as the brighter-fatter effect (BFE). The non-destructive readout capability of the H4RG-10 detectors enables correlation measurements on flat field data not only between pixels but also between time frames. I will describe how we recently measured and modelled correlations in flat field data (from Goddard's Detector Characterization Laboratory) for candidate flight detectors and discuss the path toward calibration of Roman data.

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