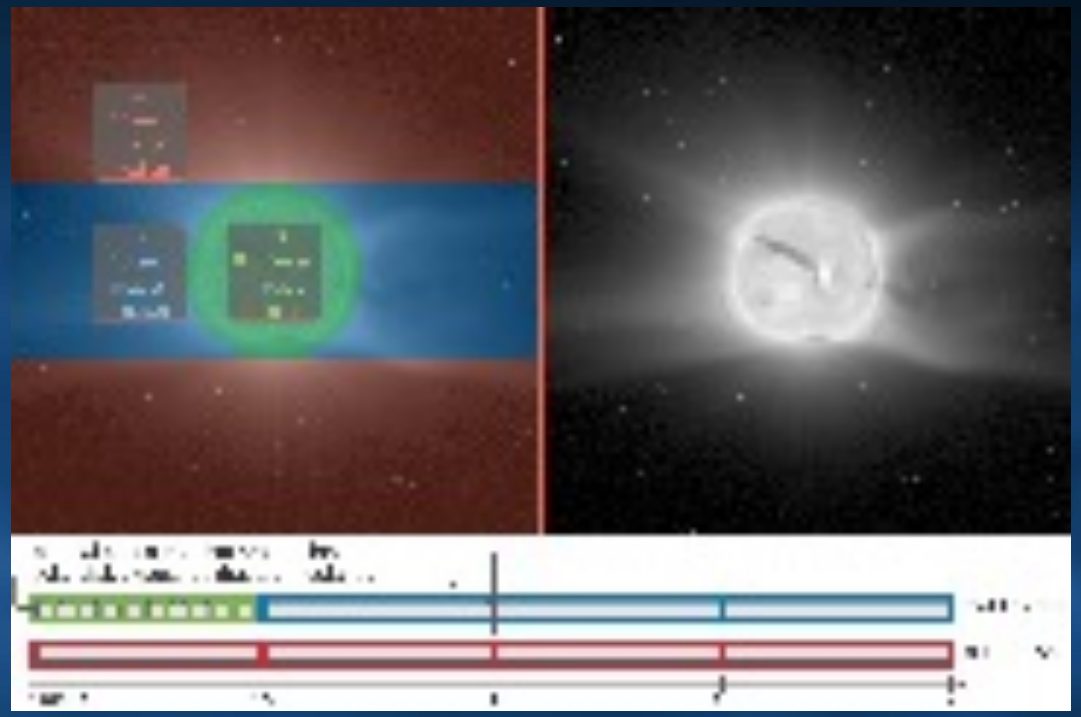
A new, fancy, High Dynamic Range (HDR) technique for capable detectors



Simulated SunCET data, exemplifying how the SHDR algorithm works. Yields SNRs of faint ejections ≥40 in the worst case, ≥200 in nominal case.

Built + tested detector tech to *simultaneously* capture SUPER bright stuff and SUPER dim stuff elsewhere in the frame

- Use case 1: solar disk is *way* brighter than surrounding corona (EUV: 10^4x, white light: 10^9x) – this is SunCET's enabling technology
- Use case 2: HDR spectra, e.g., *Hubble*'s bright Lyα vs. dim Si III, O I, C II necessitates multiple orbits to observe
- Got a detector that can read out rows independently, developed the algorithm, ran solar MHD simulations and passed them through instrument simulator, verified performance in lab
- New capability to consider in instrument trade studies spanning helio/astro/planetary/Earth science

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