

Photometric starfield subtraction from PUNCH images

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In this talk we describe the process by which the background starfield will be estimated and subtracted from PUNCH images. The process is demanding, as the small-scale nature of each star requires the starfield estimate to be spatially aligned at very high sub-pixel accuracy before subtraction, and the high brightness of many stars (much higher than the coronal signal) means even small fractional errors will be highly visible. Yet successful starfield subtraction is desirable both for cleaner visualization of the corona and solar wind, and also to support various science tasks, such as by providing cleaner inputs for flow tracking techniques and enabling Fourier methods that would otherwise struggle with the very spiky nature of the starfield. Our approach builds on methods developed for STEREO/HI-2 and adapted for PSP/WISPR.

Adaptations for PUNCH include a nuanced approach to PSF regularization, to account for the process of building multi-imager mosaics.

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