

Hunting Planets and Observing Disks with the JWST NIRCAM Coronagraph

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The expected stable point spread function, wide field of view, and great sensitivity of the NIRCAM instrument on the James Webb Space Telescope (JWST) will allow a simple, classical Lyot coronagraph to detect hot Jovian-mass companions orbiting young (<1 Gyr) stars within 150 pc as well as Jupiters around the nearest, low-mass stars. The coronagraph will also be used to study protostellar and debris disks. At 4.5 microns, where young planets are particularly bright relative to their stars, and at separations beyond ~0.5", the low space background gives JWST significant advantages over large ground-based telescopes equipped with adaptive optics. We discuss the scientific opportunities for the NIRCAM coronagraph, describe some technical features of the instrument, and present end-to-end simulations of the coronagraph with planets and disks.