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Near-IR Observations of Terrestrial Planets From Space: Surveys and Pointed Observations

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The selection of a near-IR, all-sky transit survey, ELEKTRA (the Earth-Like Transit mission), as a new NASA Explorer would result in the discovery of over 4,000 giant planets (10-1,000 MEarth), over 400 rocky planets (1-10 MEarth) including over 100 rocky planets in the habitable zones of nearby bright M stars. These objects would be important targets for spectroscopic follow-up by the James Webb Space Telescope (JWST)and other facilities. Even without the results of a transit survey, numerous instruments on JWST will make important contributions to exoplanet research. For example, the NIRCam instrument will obtain direct coronagraphic images in narrow spectral bands of young gas and icy giants orbiting nearby stars and study transiting planets of all masses at low to high spectral resolution. I will discuss the prospects for an all-sky near-IR transit mission as well as the plans of the NIRCam team for exoplanet research.