



FIG. 2.—Hierarchical diagram of the P1640 integral field spectrograph focal plane. Left: Average of 10 calibration Moon exposures, recorded by the near-infrared detector at the spectrograph focal plane. The projection of the IFU microlens array onto the detector is represented by a superimposed dotted grid, with each gap spanning 10 microlenses. Middle: Expanding a  $100 \times 100$  pixel section reveals the underlying pattern of microlens spectra. The tilt of the square microlens array with respect to the detector ( $\approx 18.5^\circ$ ) interleaves the adjacent rows of spectra for an efficient use of detector area. Right: Each spectrum, spanning J and H band (1.1  $\mu$ m to 1.8  $\mu$ m), displays the prominent telluric water-absorption trough centered near 1.4  $\mu$ m.