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Mid-Infrared Spectroscopy Of Normal Galaxies

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We are using the 1'11'1'S spectrometer 011 board the Infrared Space Observatory (1 S()) to obtain mid-infrared spectra from 2.5 to 5 μm and from 6 to 1 2 μm on a broad sample of about 50 star-forming galaxies. The spectra we have obtained so far show prominent emission features centered at 6.2, 7.7, 8.6 and 11.3 μm, presumably from the so called Polycyclic Aromatic Hydrocarbons (PAH) molecules. But the }'All feature at 3.3 μm, which have been detected in Galactic sources and some external galaxies, are generally not detected in our galaxies. Except in a few cases, the relative strengths among the detected I'A11 features vary moderately from galaxy to galaxy. We will show the ISO-CAM spectra; characterize the variation Of]'A]] relative strengths and its correlation with other galaxy properties including the mid-infrared color data from ISO-CAM images; and report the tentative detection of a continuum in the 3-to 5 μm range, whose origin remains unclear.

ISO (the Infrared Space Observatory) is an ESA mission with participation by NASA and ESA. The]'11'1' (1S0 Photometer) was built by Lemke et al (I 996, A&A Letters, Nov. 1() issue).