

Far-Infrared Emission Line Diagnostics of Galaxies

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We present ISO-LWS measurements of the three strong emission lines [OI]63 μm , [OIII]88 μm , and [CII]158 μm in a large sample of galaxies of various types. We show that simple combinations of the ratios of these lines provide an excellent diagnostic of the source of the excited and ionized gas. Even fairly rough measurements can separate quiescent disk galaxies from those harboring starbursts or Seyfert nuclei. These strong lines will thus be prime spectroscopic diagnostics for the dusty high-redshift galaxies which will be uncovered by Herschel.