10 μm Spectra of Comet Hale-Bopp

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We have obtained 8 - 13μm spectra of comet_ c/1995 01 Hale-Bopp on UT' June 11-12, July 22 and August 5-7 1996 at R > 3.5 AU. The spectra were acquired with the Cornell Spectrocam-10 imaging spectrograph at the Palomar 5-m Hale Telescope and with the Aerospace! BASS infrared array spectrograph at the NASA Infrared Telescope Facility. Strong silicate emission is present in all of the spectra, about, 75% above a blackbody continuum. The shape of the feature is very similar to that seen in comet- P/Halley, including a peak at. 11.25 μm most likely due to crystalline olivine. This is the first time that. a strong silicate feature has been detected in a comet beyond 2 AU. The dust continuum temperatures derived from fitting a grey body near 8 and 13 μm are 27% · 37% higher than a black body in equilibrium. The strong silicate feature and the warm temperatures indicate that small grains were abundant in the coma .

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