

Infrared Spectrum of the Lunar Surface

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It was well known, since Apollo human exploration, that the Moon has no water results from high temperature condition when originated from giant impact hypothesis. Modern observations, such as neutron spectrometer, however, present indirect evidence that water ice could exist, in particular, at its polar region. Because rotational axis of the Moon is almost perpendicular to the Sun, craters at north/south pole, containing water ice results from cometary impact, will never be heated by solar radiation. Recently Moon Mineralogy Mapper (M3), which is onboard instrument of Chandrayaan, Indian lunar explorer, obtained the global map of hydroxyl and/or water ice of the lunar surface. Due to the limitation of wavelength coverage of M3, unfortunately, direct detection of water ice absorption band near 3.1 μm was not possible. Infrared spectrometer whose wavelength covers up to 4 μm will give us direct evidence of water ice.