



Passive Image Interferometry beyond the Earth

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The Apollo 17 mission installed seismic equipment on the lunar surface that was in continuous operation during eight months in 1976 and 1977. It was demonstrated that Rayleigh waves can be retrieved from this dataset by cross-correlation of the lunar seismic noise recorded at different stations. We show that not only these direct surface waves can be recovered but also coda waves with later arrival times. Applying Passive Image Interferometry to these data we show that there are periodic variations of the seismic velocities in the shallow lunar crust. The variations appear to be linked to the Sun-synodic period of 29.5 days.