

Constraint on composition and size of lunar Fe-Ni-S core

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In order to constrain S content in the lunar core and to estimate the structure of lunar interior, we compared measured V_p and r data of liquid Fe-alloys at the lunar core condition with observed geophysical data. We have measured sound velocity and density of liquid Fe-Ni-S using ultrasonic pulse-echo and X-ray absorption methods combined with multianvil apparatus up to 14 GPa. The obtained sound velocity and bulk modulus significantly decreased with increasing S content at the lunar core condition (5 GPa, 1800 K). Estimated Fe-Ni-S lunar core model from the present elastic properties will be compared with the previous interior models of Moon (Garcia et al. 2011 and Weber et al. 2011).

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