

Improvement of Seismometer onboard LUNAR-A Penetrator: Its Magnetism and Period Extension Method

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The seismometer system onboard LUNAR-A penetrator consists of two electro-magnetic moving coil type sensors with a natural period of about 1 sec, each of which is aligned orthogonally. The LUNAR-A seismometer is designed to be three times more sensitive than either the Apollo short-period or long-period seismometer at a frequency of around 1 Hz. This high gain is achieved by using a new rare-earth magnet and a newly developed electro-magnetic coil wound with 20 micron Cu wire. The period extension is attained by using a pair of ferromagnetic materials, on which the magnetic force partially cancels the restoring force of the spring-inertial mass system.