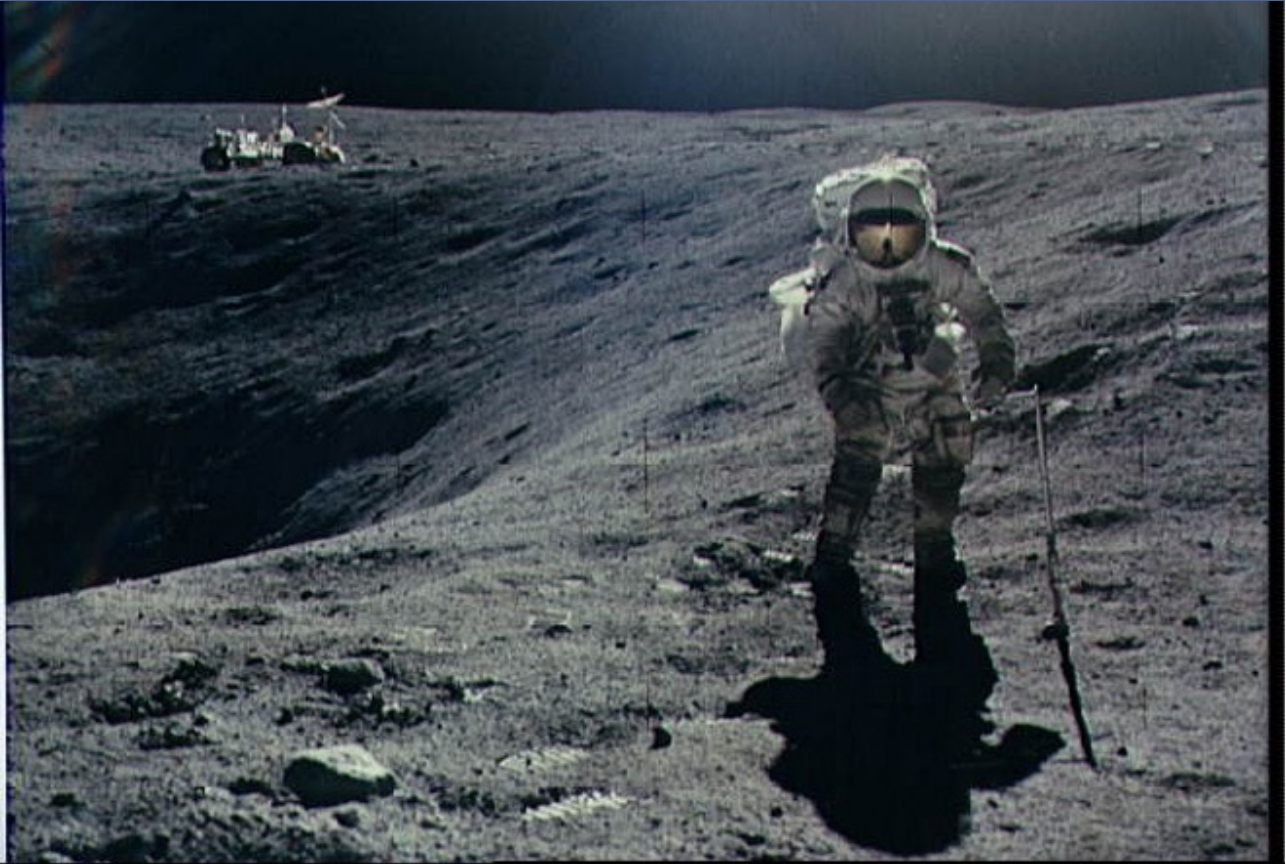


SEG - Seismology and Geodynamics

Master Thesis



Using electromagnetic sounding data to investigate water content of the lunar mantle

In this Master thesis project we would like to investigate the water content of the Moon in more detail by inverting electromagnetic sounding data acquired during the Apollo missions.

The currently favoured theory for the origin of the Moon involves a collision in the late stages of planetary formation between the proto-Earth and a Mars-sized impactor having a substantial fraction of the proto-Earth mass.

Modeling studies show that a proportion of the mantle material ejected by the impact would settle in a ring around the Earth from which the Moon would accrete. This scenario involves a high temperature origin for the Moon as a result of which it is believed that water and other volatiles would have been vaporized resulting in a bone-dry Moon.

To invert for mantle water content we will make use of laboratory-based electrical conductivity profiles that are obtained through mantle mineral phase equilibrium computations.

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