# New high-precision triple oxygen isotope measurements of lunar rocks

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The original giant impact hypothesis on the origin of the Moon implies that the Moon accreted a higher portion of impactor Theia than the Earth. In general, Theia is expected to have had a different $\Delta'^{17}O$ than the proto-Earth. According to the original giant impact hypothesis, it is hence expected that the Moon has a different $\Delta'^{17}O$ than the Earth.

Several studies addressed the triple oxygen isotope composition of the Moon vs. Earth [1-6]. Differences in $\Delta'^{17}O$ (Moon-Earth) between 0 and 12 ppm have been reported. We re-assess the composition of lunar rocks in comparison to terrestrial rocks by means of improved high-precision triple oxygen isotope measurements.

Oxygen isotope measurements were conducted by laser fluorination using $BrF_5$ as fluorinating agent. A modified analytical protocol compared to previous studies was developed, allowing longer measurement sessions with constant analytical conditions.

We studied mare basalts, gabbros, anorthosites, breccias, soil and pyroclastic glasses sampled by the Apollo missions. New results will be presented.

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