What may be the oldest rock from Earth was identified in part of a moon rock returned by the Apollo 14 astronauts.

• New techniques for locating impactor fragments in the lunar regolith were used to identify a piece of early Earth embedded in the lunar sample.

• The 2 gram fragment of rock is composed of quartz, feldspar, and zircon - all commonly found on Earth, but highly unusual on the Moon. Chemical analyses show the fragment crystallized in a terrestrial-like oxidized system, at terrestrial temperatures, rather than in the reducing and higher-temperature conditions characteristic of the Moon. The rock is over 4 billion years old.

• Pristine samples from early Earth could shed light on evolutionary conditions of the Earth-Moon system during the dawn of life.

Bellucci et al. (2019) EPSL