Technique reveals age of planetary materials

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The key to understanding the geologic history of the Solar System is knowing the ages of planetary rocks. Researchers have developed an instrument that is not only capable of dating rocks, but also is composed entirely of technology that can be miniaturized for spaceflight.

As detailed in *Rapid Communications in Mass Spectrometry*, they validated the instrument—a laser ablation resonance ionization mass spectrometer—by dating a rock from Mars: the meteorite Zagami, which formed about 180 million years ago, and fell to Earth in 1962.

"The beauty of the technique is that it requires little sample preparation, and the instrument is small and fast, making it appropriate for use by NASA and in field environments here on Earth," said lead author Dr. F. Scott Anderson. "Furthermore, in addition to obtaining dates, the instrument can simultaneously provide geochemistry measurements and provide high-sensitivity detection of organics."

More information: Scott Anderson F., Levine J., and Whitaker T. (2014) Dating the Martian meteorite Zagami by the 87Rb-87Sr isochron method with a prototype in situ resonance ionization mass spectrometer, *Rapid Commun. Mass Spectrom.*, 29, 191-204. DOI: 10.1002/rcm.7095

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