Goldschmidt 2025 Abstract
https://doi.org/10.7185/gold2025.27800

Grenville Turner and his remarkable innovations and scientific impact

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Grenville Turner will long be remembered as one of the great pioneers of modern isotope geochemistry and geochronology. With Craig Merrihue, he first developed $^{40}Ar/^{39}Ar$ dating and swiftly realized it would be profoundly important for elucidating the ages and degassing history of lunar rocks recently returned in the Apollo missions. The impact of $^{40}Ar/^{39}Ar$ geochronology on the geosciences, not to mention planetary science and archaeology is hard to understate. It is the primary method of thermochronology and one of the most effective methods for very precise geochronology more generally. However, Grenville Turner also generated a vast array of additional innovations in technology, data analysis and novel applications. These included the RELAX laser resonance mass spectrometer for highly sensitive Xe measurements, the determination of palaeoatmospheric $^{40}Ar/^{36}Ar$ and the degassing history of the Earth, the chronology and composition of fluid inclusions, the stellar environments producing presolar grains, the abundance of extinct nuclides in the early Solar System, and the Pu/U ratio of the early Earth. Beyond the brilliance of his science, and the legacy of his incredible ideas and innovations, Grenville Turner will be remembered as a truly collegial, thoughtful and imaginative person, with whom some of us were lucky to be acquainted.