

$^{40}\text{Ar}/^{39}\text{Ar}$ geochronology using a 5-channel multi-detector high resolution mass spectrometer.

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In the last decade, noble gas mass spectrometry has moved from single collector to multi-collector beam detection. New approaches for the detection of individual ion beams are being introduced such as faraday collectors with 10^{12} and 10^{13} Ohm resistor amplifiers. In addition, our instrument is fitted with compact discrete dynode secondary electron multipliers for pulse counting detection on each channel.

The design of our instrument includes a 120° deflection magnet with a measured standard resolution of *ca* 900, and in high resolution mode (channel L2) a resolution of *ca* 1700. The high resolution detector is fitted on the L2 channel, and used for the detection of ^{36}Ar .

The new mass spectrometer is complemented with a newly designed low-volume sample preparation system that is fully automated with optional use of all functions included three stages of gettering (Ti sponge, SAES C10 – ST707, and ST172 SAES getters in custom built housing) and a *ca* 185 K cold trap. Gas sources include two gas pipettes for reference gases, a small volume resistance furnace, pulsed Nd-YAG and continuous CO_2 laser heating system, and an optional port that can be used e.g. for our semi-automated crusher system.

The instrument became fully operational in January 2014, and several modes of operation have been tested and will be discussed in our poster.