



A new branch on the tree of $^{40}\text{Ar}/^{39}\text{Ar}$ multi-collector mass spectrometers

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In the past decade the $^{40}\text{Ar}/^{39}\text{Ar}$ community partly moved from single collector to multi-collector beam detection approaches with the Noblesse, Argus VI, Helix MC and NGX-600 mass spectrometers as main players in this transition. Here, we report our first findings about the set-up of the new high-sensitivity Thermo Fisher Scientific Argus VI+ at the Vrije Universiteit Amsterdam (VUA, the Netherlands) that is equipped with an innovative 6-channel multi-collector assembly consisting of four Faraday cups on the high mass side (H2 – L1) and two compact discrete dynodes on the low mass positions (L2 and L3). In addition, the faraday collector in the H2 position is fitted with a 1012 Ohm amplifier whereas the faraday collectors in the H1, AX and L1 positions are equipped with 1013 Ohm amplifiers. Here we provide a detailed performance assessment of the Argus VI+ mass spectrometer, including our initial tests to characterize the system, followed by a brief description of our measurement and data reduction protocols. Initial instrument and system tests such as baselines, sensitivity and resolution are reported and compared to our Helix MC system. Also, the first $^{40}\text{Ar}/^{39}\text{Ar}$ data will be reported.