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First Lunar results of the D-CIXS X-ray spectrometer on SMART-1

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The SMART-1 mission has recently arrived at the Moon. Its payload includes D-CIXS, a compact X-ray spectrometer. SMART-1 is a technology evaluation mission, and D-CIXS is the first of a new generation of planetary X-ray spectrometers. Novel technologies enable new capabilities for measuring the fluorescent yield of a planetary surface or atmosphere which is illuminated by solar X-rays. During the extended SMART-1 cruise phase, observations of the Earth showed strong argon emission, providing a good source for calibration and demonstrating the potential of the technique. At the Moon, our initial observations over Mare Crisium show a first unambiguous remote sensing of calcium in the lunar regolith. Data obtained are broadly consistent with current understanding of mare and highland composition. Ground truth is provided by the returned Luna 20 and 24 sample sets.