

Abstract Submitted
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Construction and Commissioning of a New Scattering Chamber at the Union College Ion Beam Analysis Laboratory COLIN TURLEY, ROBERT MOORE, CHRISTOPHER JOHNSON, MARIA BATTAGLIA, MICHAEL VINEYARD, SCOTT LABRAKE, Union College — We have constructed a new scattering chamber in the Union College Ion Beam Analysis Laboratory to improve our experimental capabilities. The new chamber was constructed from a ten-inch, conflat, multi-way cross. We fitted the chamber with an eight-inch, Leybold turbomolecular pump so that it can be evacuated quickly. A target manipulator with stepper motors that provide x, y, and z-positioning of the target with micron precision is mounted atop the chamber. A target ladder was constructed for the manipulator that allows us to analyze multiple samples without breaking the vacuum. The chamber has a door with an O-ring seal mounted on one of the ten-inch ports that provides easy access to the interior of the chamber. An Amptek silicon-drift X-ray detector is mounted close to the target ladder, inside the vacuum so that low-energy X-rays can be detected. A new Faraday cup was also installed to provide more accurate current measurements. Finally, a new collimator system was developed and installed in the beam-line to the scattering chamber to provide a well-defined beam spot. A proton induced X-ray emission analysis of aerosol samples has been performed as the commissioning experiment for the chamber. Here, we report on the construction and commissioning of this new chamber.

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