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**Monochromatic Micro-X-Ray Fluorescence to Measure Accumulations of Iron in the Spleens of Methamphetamine-Doped Mice** AMANDA KENNEL, ANELA CAMDZIC, HAYLEY ADAMS, SARAH FORMICA, The University of North Georgia — A monochromatic, micro-X-ray Fluorescence Spectroscopy ( $M\mu$ XRF) system is used to measure iron concentrations in spleens of methamphetamine-doped mice to quantify the physiological phenomenon that methamphetamine overexposure causes an accumulation of iron in the spleen. Qualitative measurements have already confirmed this phenomenon, however the XRF results will quantify these measurements quickly, inexpensively, and without destroying the spleen samples. This technique of heavy metal detection will be used in future experiments to determine iron and other metal concentrations in various biological tissues, such as brain tissue. The XRF system comprises a low-power (50 W), Rh-target sealed tube source, a Doubly-Curved Crystal (DCC) optic, and a Si-PiN diode detector. The coupling of the DCC optic with the low-power source allows for an intense, monochromatic, 200- $\mu$ m-diameter focal spot without the need for water-cooling or a rotating anode source.

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