Abstract Submitted
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An XRF Study of Meteorites KIERSTIN DAVIAU, Bard College, R.G. MAYNE, A. EHLMANN, None — Meteorites from the Oscar E. Monnig collection at TCU were scanned with a Bruker Tracer-III SD XRF machine in order to create a library of XRF spectra for different groups of meteorites. Over a ten week period this study examined 122 chondritic and achondritic samples, a total of eight groups. The XRF machine was run at a voltage of 40.00 and a current of 3.00 amps without vacuum. Selected meteorites had at least one smooth, flat surface. Each meteorite was scanned a minimum of five times at differing positions for a surface analysis. Average values for each element found was calculated in ARTAX 7. The elements identified by the XRF as useful in distinguishing meteorite groups are Mn, Si, and Mg. Within the chondritic meteorites Fe also differed. For achondrites, Ti, Ca and Al varied. The XRF also recognized two non obvious a-typical meteorites. The XRF has already proven useful to the field of meteoritics and has the potential to continue doing so. It has been used frequently at TCU to identify meteorites from "meteorwrongs." An XRF library of meteorites could take this tentative identification process a step further. Depending on the spectra of the rock it may be possible to not only determine whether it is a meteorite but to also give some idea of what group it may belong to.

[1] Bunch, T.E, et. al. (2009) *Northwest Africa 2824: Another Eucrite-like Sample from the Ibitira Parent Body?*
[2] Meteoritical Bulletin Database. http://www.lpi.usra.edu/meteor/metbull.php

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