Experimental Verification of Moseley's Law and the Measurement of Environmental, Pollution, and Biological Samples using X-Ray Fluorescence analysis VENKATA KUMMARI, University of North Texas, Denton, Texas, SAHIL NAIK, RITISH PATNAIK, Texas Academy of Math and Science, JEROME DUGGAN, BIBHUDUTTA ROUT, University of North Texas, Denton, Texas — X-rays are in general known to follow Moseley's Law. He provided the first concrete experimental evidence in favor of Bohr's theory of the atom. His major discovery was that there is a systematic mathematical relationship between the X-ray produced by the target and the atomic number of the target. This relationship became known as Moseley's Law and just think he was only 25 years old when he made this discovery. Moseley's Law states that the frequency of the K_α radiation is given by: $f_{K\alpha} = \frac{3cR}{4}(Z-1)^2$ where c is the velocity of light and R is the Rydberg constant. Therefore a plot of the square root of frequency of the K_α line versus the atomic number of the element should be a straight line. A similar plot for the $K_{\beta1}$ line also yields a straight line. In this poster we will show the X-ray fluorescence measurement of a variety of environmental, pollution and biological samples. The X-rays from these samples were excited with an X-ray tube and radioactive sources which gives experimental verification of Moseley's Law and X-ray fluorescence measurement.

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