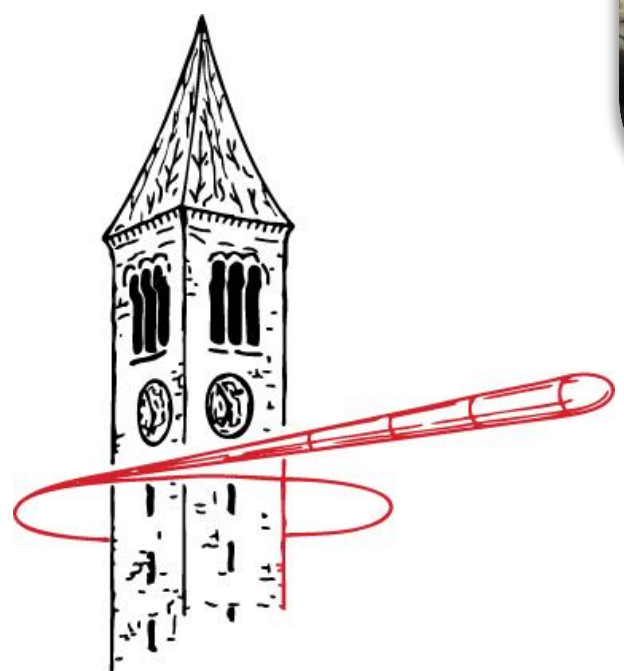




Summer Research for Community College Students – 2015 *Integrating X-Ray Fluorescence Capabilities into Outreach*

Motivation

Inspiring the next generation of scientists is one of the paramount principals of responsible research. We were motivated to present the concept of X-ray Fluorescence because it is an integral part of the research done at CHESS. Also, we wanted to give the public, concentrating on secondary educational level students, an introduction to the capabilities of this technology.



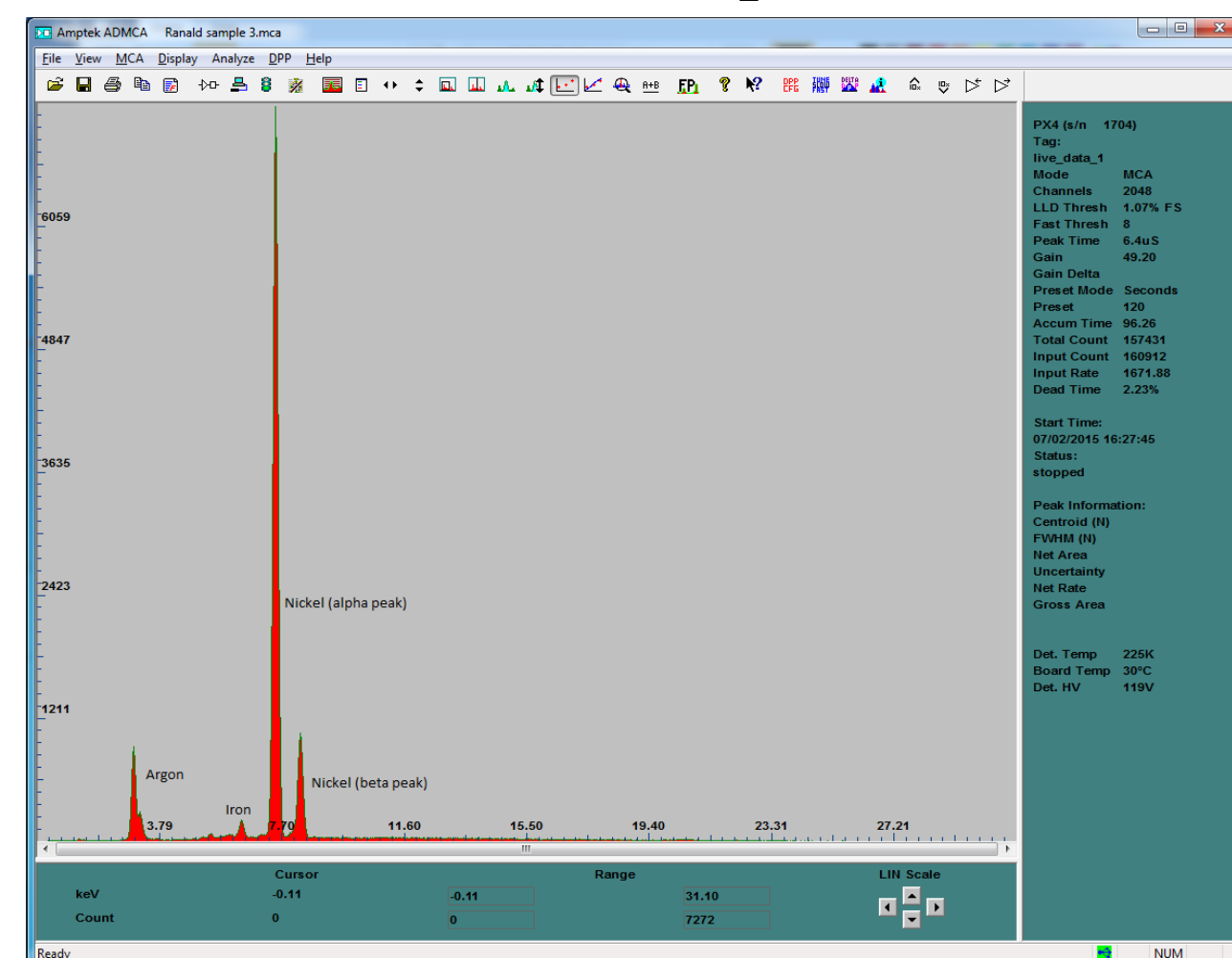
The Project overview



What is X-ray Fluorescence and why does it matter?

X-ray fluorescence (XRF) is a non-invasive, non-destructive technique for elemental analysis.

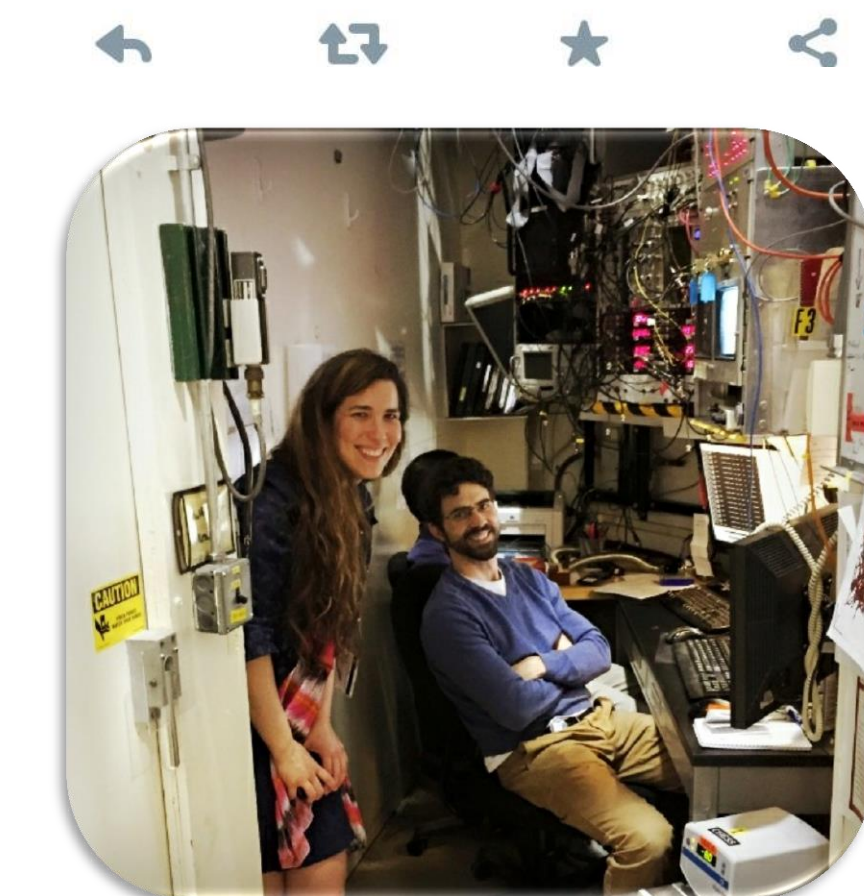
Individuals can x-ray materials to find out what they are made of down to the pure elements listed on the periodic table.
Why is this important?
There are an unlimited amount of capabilities in which this type of analysis can be helpful. For instance, people can study lead content in fish or soil, study the composition of fossils and rocks, and examine artwork to see if it is authentic or a forgery. These are just a few ways it has been used in the past!



REU student @DevinSonne analyzes a sample from @PRI1932 using Xray Fluorescence, thanks to help from @arthurwoll.



10:58 AM · 17 Jun 15



Making ‘waves’ Just a bit of physics humor ...

Action points of my project

- Compiling resources and information
- Producing training videos for future users
- Conferencing about integration of XRF into laboratory learning
- Addressing permit and mobility issues
- Initiate and oversee transition of the XRF device to alternative locations for increased usage

✓ Applications & Future Development

Laboratory experiences for secondary school curriculum are being developed surrounding the XRF learning outcomes. These outcomes include knowledge of atomic structure, electron orbitals, ground state and excited state as well as the wave length model, among others.



The portable XRF device that has been housed at CHESS is now permitted for outreach visits all across NYS and for extended events at Paleontological Research Institute which will enable all ages of learners, from children to adults, to be “exposed” to the amazing potentials of x-rays.

Acknowledgements

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