

X-ray Diffraction - Additional Experiment

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Xrays to Visualize Hidden Objects

The medical use of Xrays, of course, is to visualize bones within flesh. Xrays can be used to visualize metal objects as well. With this equipment, this is easy and fun.

The screen at the far right of the PHYWE equipment is a phosphorescent one that can be used to image.

There is a small cardboard box that has a metallic object “hidden” inside. Place that inside the Xray device, propped up on a foam block so it is about the height of the imaging screen.

Remove all pinholes, so the Xrays from the source are coming out unimpeded and uncollimated.

The machine can be run fully manually. In order to do so:

1. Close the Measure program.
2. Power cycle the XRD unit - off, then on again. The front panel should now indicate it is in Manual mode.
3. Make sure the light within the XRD unit is turned off.
4. Use the various switches to select both the Crystal and the Goniometer, and the dial to manually drive it way up to some large angle. You just want the detector up out of the way.
5. Hit HV, dial up 35 kV. Hit I, dial up 1 mA.
6. HV ON. Make sure the sliding window is locked properly before doing this. The tube should light.
7. Turn the room lights off. Look at the screen, from outside the unit, on the far right.

What is in the box?

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