Advantages of a Grazing Incidence Monochromator in the Extreme Ultraviolet

By Sarah Barton
Thin Films

We “grow” films with thicknesses in the range of 200-400 Å.

We measure reflectance properties of different films in the extreme ultraviolet.

Methods used for creating films include sputtering and evaporation.
Past Projects and Applications

- ESA Mars Express Probe, Venus Express Probe
- Astronomy
- Microscopy
- Plasma Diagnostics
The Advanced Light Source at Lawrence Berkeley National Laboratories

- Synchrotron
- High Intensity
- Shorter Wavelengths
- Continuous Spectrum
- Many Different Gratings
  - Including Grazing Incidence
What is a Grazing Incidence Monochromator Anyway?
Set-Up

-- Insert GIMS here
Differences

• Near-Grazing vs. Near-Normal Angles
• More Reflective for Higher Wavelengths
  • Possible Higher Intensity
  • Smaller Size
Reflection and Absorption

- 30 Å
- Pt
Why We Care

Reflectance at 5 degrees

Reflectance at 85 degrees
Benefits

• Less Absorption
• Higher Wavelengths
• 2 Sources

• And…
Convenience!

The Under Ground Lab is a lot closer than California!
Acknowledgements

• Dr. Alexander Shevelko
  • Dr. Turley
  • Dr. Allred
• BYU Thin Films Group
• NASA Rocky Mountain Consortium
  • John Ellsworth