

Vertical Reflectometers: MAGIK and PBR

1. Installation

- a) Guide and shielding buildout
- b) Exterior assembly

2. Alignment and testing

3. Entry into user program

4. Planned upgrades

- a) GISANS mode for MAGIK
- b) Area detector for PBR
- c) NICE control software



Pre-installation



- Monochromators
 - Machining of “picture-frame” support for blades
 - Mounting of motors and blades
 - Mounting of PG material on blades
- Crane
 - Manufacture of superstructure
 - Delivery and installation
- Pre-assembly beginning June 2012
- Experiment Plan (Safety) review
- Electrical and water lines installation



1. Installation a): Guide and shielding buildout

- Monochromators mounted in guide cut and wired, shutters installed
 - PBR: work starts 07/05/12
 - MAGIK: work starts 07/12/12
- Shutter controls complete
 - PBR: 07/12/12
 - MAGIK: 07/26/12

1. Installation b): Exterior assembly

- Installation of electronics racks and wiring in trenches
 - PBR: 07/26/12
 - MAGIK: 08/09/12
- Attachment of optics tables to exterior shield
- Installation of crane and safety testing (outside contractor)
- Preparation of control computers and software (ICP)



2. Alignment and testing

- Alignment and adjustments, PBR:
 - Pre-assembled th-2th instrument body aligned ~ 1 week
(based on previous move)
 - Monochromator fixed-focus set ex-situ
 - Test calibrated sample... **ready to run 08/14/12**
- Alignment and adjustments, MAGIK:
 - Centering of rotation stages
 - Alignment aided by fixed-angle reference detector
 - Test adjustable-focus monochromator
 - New Denex detector (artifact correction)
 - Test calibrated samples... **ready to run October**



3. Entry into user program

● PBR:

- Control software: ICP
- 1D Reduction: Reflred
- 1D Analysis: Refl1D (new)

● MAGIK:

- Control software: ICP + NICE alpha
- 1D Reduction + analysis (as PBR)
- 2D Reduction: Web-based interactive reduction
- 2D analysis: BA and DWBA preliminary modeling



4. Planned upgrades



- PBR:
 - NICE for day-to-day operations
 - 2D detector integration (Brookhaven)
 - Web-based 1D data reduction + viewing
- MAGIK:
 - Optics for GISANS
 - Radial collimator (~\$30k, quote from SwissNeutronics)
 - Vertical slits (in guide at slit 1 position)
 - NICE for day-to-day operations

