X-ray Crystallography of Surfaces and Interfaces

Ian Robinson
University of Illinois, Urbana USA

ACA, Arlington, 19 July 1998

Outline

- New Notation for Surface Diffraction
- Distinction between Surface and Bulk Diffraction
- New Structural Properties of Surfaces
- Future Outlook

Notation for Surface Diffraction

- Plane Groups
- Plane Groups in 3D
- hkL Notation Identifies Perpendicular

Surface and Bulk Diffraction

- Surface sensitivity by *symmetry* selection
- Crystal Truncation Rods
- New Structural Information: Roughness
- Lateral correlations from lineshape

Important Surface Structural Principles

- Relaxation
- Reconstruction: Si(111)7x7
- Electrochemical Interface

Future Outlook

- Anharmonicity
- Magnetic Structures
- Light Elements
- Direct Methods
- Coherent Diffraction