

# Coherent X-ray Optics Discussion Outline

## 1. Identify & discuss optical principles & their limits.

What kind of beam shaping is possible (size, polarization, energy resolution, etc.?)

How small a coherent beam diameter can be made?

## 2. Quantify what will be needed to make substantial progress.

How can low wavefront distortion be realized with x-ray optics?

Reflecting mirrors produce ~100nm focus, need ultra-low slope & figure errors

Zone plates produce ~20nm resolution, need to control thickness of zones(phase shifts) & zone positioning

Waveguides produce ~30 nm resolution, need perfection in the guiding layer(s), etc.

## 3. What new metrology and test methods need to be developed?

## 4. What can be done to speed up the rate of progress?

by Don Bilderback, Cornell University, 22 August 2003



# Coherent X-ray Optics Session Program

1. Tetsuya Ishikawa - Coherence preserving reflecting and crystal optics
2. Enzo Di Fabrizio - Shaping x-rays by diffractive coded nano-optics
3. David Patterson - X-ray spatial coherence measurements
4. Wenbing Yun - Nanometer imaging with high brightness source

Workshop on X-ray Coherence, 22 August 2003

