

Compact, Coherent EUV Source Development at the New EUV Science & Technology Center

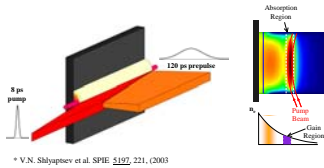


Colorado State University
Fort Collins
(Rocca, Menoni, Marconi et al.)

University of Colorado
Boulder
(Murnane, Kapteyn et al.)

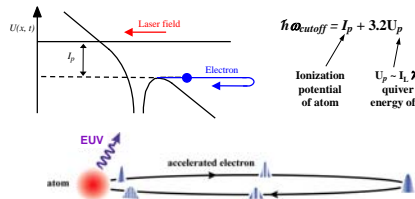
University of California
Berkeley & LBNL
(Attwood, Anderson et al.)

EUV/Soft X-Ray Lasers: Grazing Incidence Improves Energy Depositon



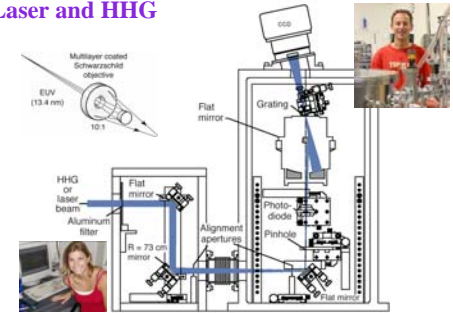
* V.N. Shlyaptsev et al. SPIE 5192, 221, (2003)

High Harmonic Generation (HHG): Atoms in an Intense Laser Field



Application to EUV Metrologies

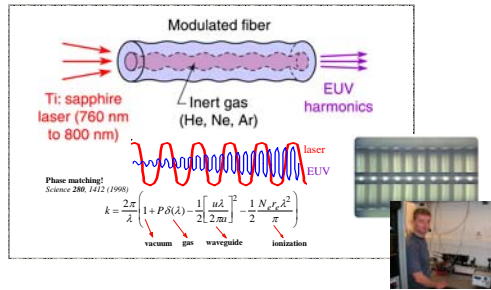
EUV Wavefront Interferometry with Compact, Coherent EUV Laser and HHG



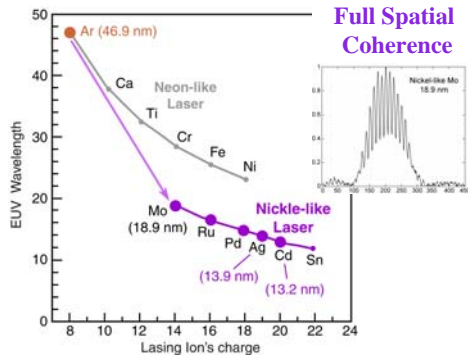
Laser-Pumped EUV/Soft X-Ray Lasers Ti: Sapphire Pump Laser, 1 J, 5-10 Hz



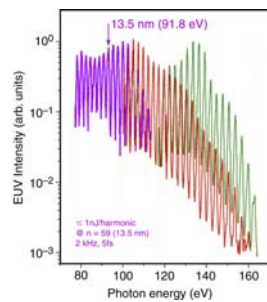
EUV High Harmonic Generation (HHG)



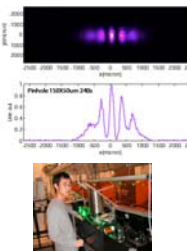
EUV Laser Wavelengths



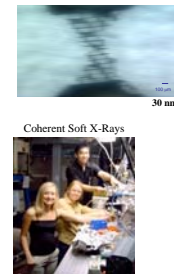
Tunable EUV Harmonics



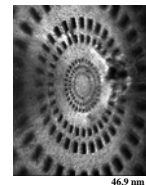
Coherence of 13 nm EUV beam



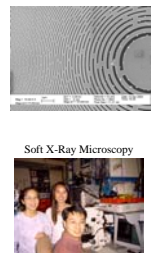
Microscopy Using HHG



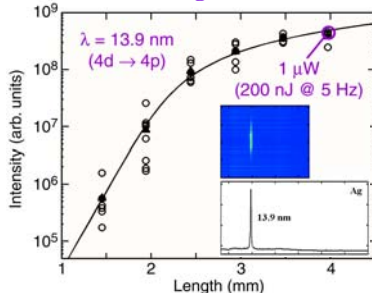
Zone Plate Microscopy



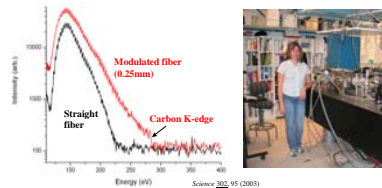
Free-standing Zone Plate



Ni-like Ag EUV Laser



Phase Matching at 300 eV and 100% Ionization Levels



Corporate Members

| | | | |
|-------|-----------------|-----------|----------------|
| Cymer | Sematech | Exitech | EUV Technology |
| Intel | Spectra-Physics | Energetiq | Bach Research |
| AMD | Coherent | JMAR | CDM Optics |