

MATERIALS CHARACTERIZATION AND PERFORMANCE (O1819)

SURFACE ANALYSIS LABORATORY

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◆SIMS Highlights

- High mass resolution and accuracy
- Ion imaging (200nm resolution)
- Monolayer analysis, depth profiling (highest depth resolution)
- Quantitative analysis
- Isotopic ratios
- Molecular detection

◆XPS Highlights

- High energy resolution
- Oxidation state information
- Local bonding environment
- Quantitative analysis
- Valence band analysis
- Work function, ionization potential

◆AFM Highlights

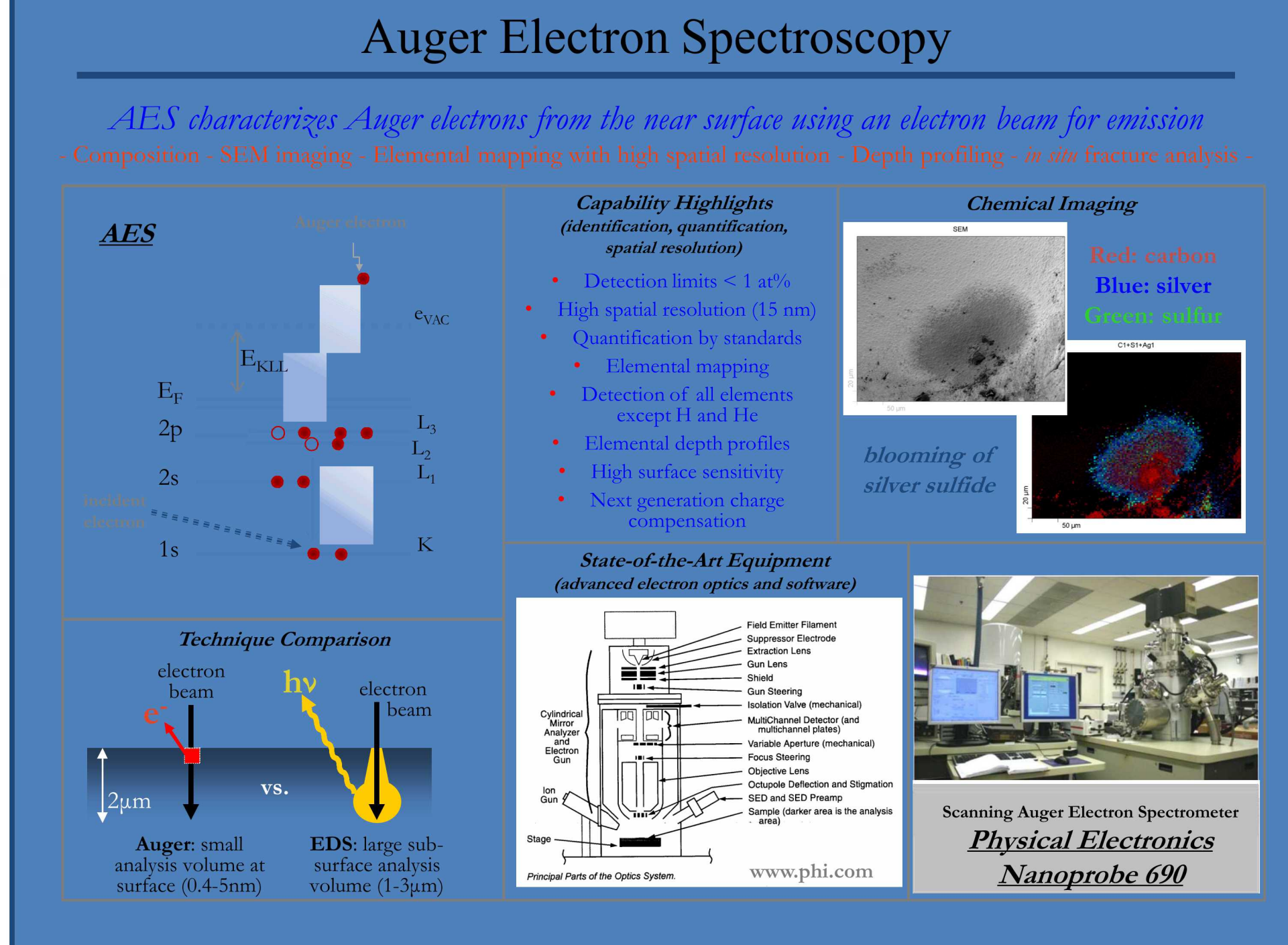
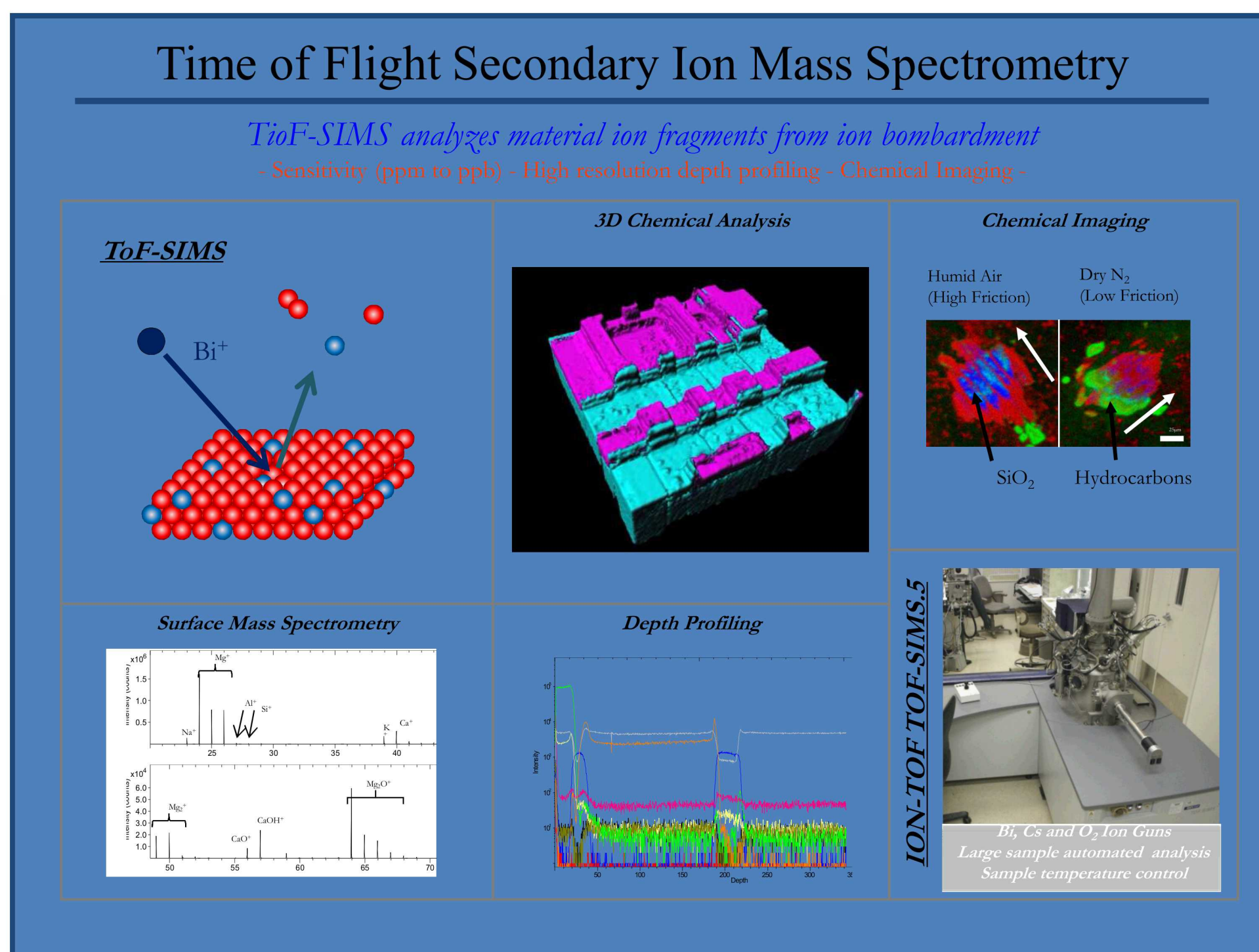
- Sensitive topographical imaging
- Electrical mapping (TUNA)
- Elastic modulus, adhesion
- Large sample automated analyses
- State-of-the-art hardware and feedback software interfacing

AES Highlights

- High resolution spatial elemental analysis
- SEM imaging
- Compositional mapping
- Semi-quantitative depth profiling
- in situ* fracture analysis
- Next generation charge compensation

- Surface sensitive techniques take advantage of unique emission phenomena to probe the topmost molecular layers of a surface.
- These advanced techniques provide a breadth of information complementing other analytical techniques providing information on composition, chemistry, and topography of surfaces.
 - Imaging and depth profiling capabilities on all techniques expand the role of surface science to microscopy and bulk analysis.
 - Surface science is relevant for many applications ... adhesion, corrosion, catalysis, contamination, interfaces, etc.
 - All classes of materials can be analyzed and all elements can be detected.
- Differentiating capabilities ... thin layer analyses, small spot sizes, sensitivity, depth profiling, electronic information, *in situ* depositions and thermal treatments, inert transfer capabilities, etc.

UHV CORE CAPABILITIES



SURFACE PROBE TECHNIQUES

