TECHNIQUE	INFO GAINED	DEPTH ANALYZED	LATERAL RESOL	DETECTION LIMITS	BULK OR SURF
XRD	phase	μm	none	~3% phase	bulk
XRF	elements	μm	none	0.10%	bulk
XPS	elements, chem	1-5nm	mm to 100μm	sub-monolayer	surf
AES	elem, some chem	1-5nm	10nm	100ppm	surf
ISS	elem	<1nm	150 μm	0.01 monolayer	surf
MEIS	atomic structure	3nm	none	sub-monolayer	surf
RBS	elem, atomic structure	2-30nm to μm	μm to mm	10-100 ppm	surf, some bulk
SIMS	elem	nm-μm	μm to 50nm	ppb	surf
SEM	microstruct, elem*	nm to μm	1-50nm		topography
TEM	μ-, latt-struct, elem*, phases	10-20nm	0.2nm	monolayer (hi Z)	
HAADF-STEM	Atom locations	10-20 nm	1Å		
EPMA	elem, some chem	100nm-5μm	100nm-μm	100ppm	bulk
STM	struct	0.1nm	0.1nm		surf
AFM	struct	0.1nm	0.1nm		surf
IR,RAMAN	bonding, chem	μm	μm's		bulk
EXAFS	struct, chem	μm	none	100ppm	bulk, surf

* with EDS or WDS attachment