X-Ray Diffraction Facility at USF
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Bruker D8 Venture
Single Crystal X-ray Diffractometer

Bruker D8 Advance with DaVinci
Powder X-ray Diffractometer

X-rays
SINGLE CRYSTAL
DIFFRACTION PATTERN
CRYSTAL STRUCTURE

2d(hkl)sinθ = nλ

Phase identification
ICDD-PDF2 Database
Quantitative analysis
Indexing
Structure solution

Bruker D8 Advance
Powder Diffractometer with DAVINCI design

• LYNXEYE high-speed detector
• Vertical goniometer in theta-theta configuration so sample stage always remains flat
• Twin-Twin primary and secondary optics for automatic changing from Bragg-Brentano to Parallel Beam geometry and back
• Rotational sample stage • Capillary stage
• TTK 450 non-ambient stage
• DIFFRAC.EVA measurement software
• DIFFRAC.TOPAS software for advanced data manipulation including Rietveld refinement and quantitative analysis

Bruker D8 VENTURE
Single Crystal Diffractometer

PHOTON 2 CPAD DETECTOR
Air cooled, 100-cm² active area
Cu-μS Microfocus X-ray Source
Air cooled !!! Up to 300x more intensity!!!
Low Temperature Device (80-500K)
Application:
Microcrystallography