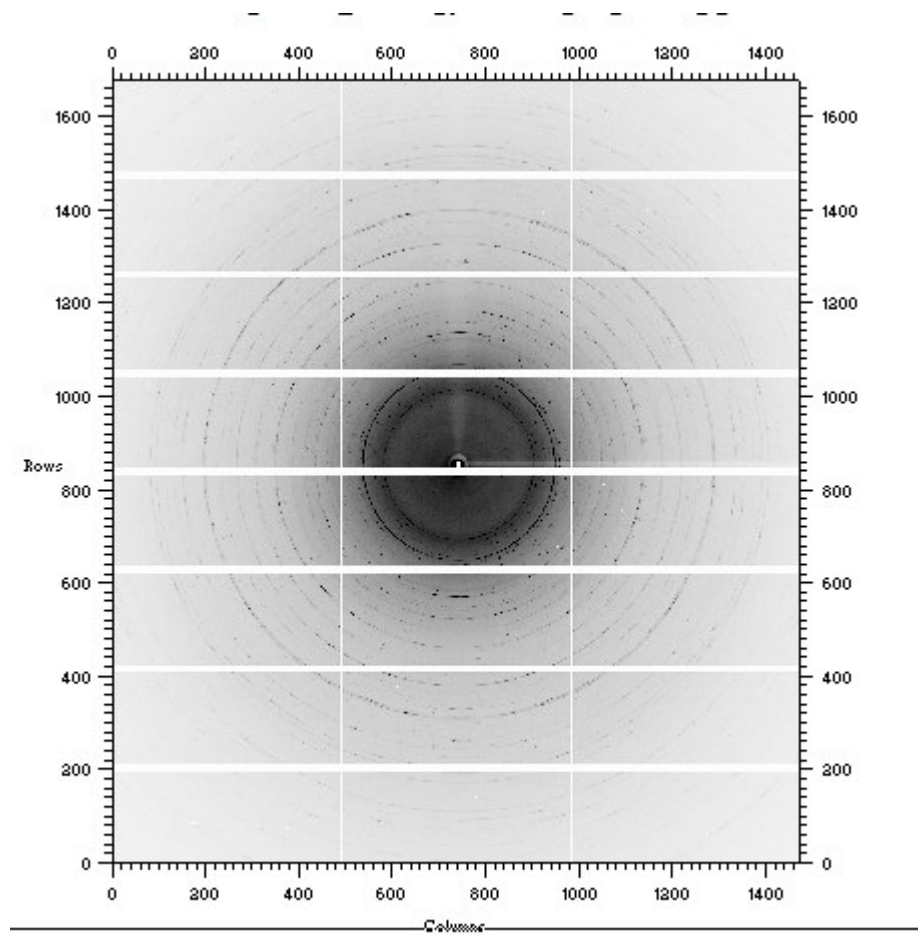
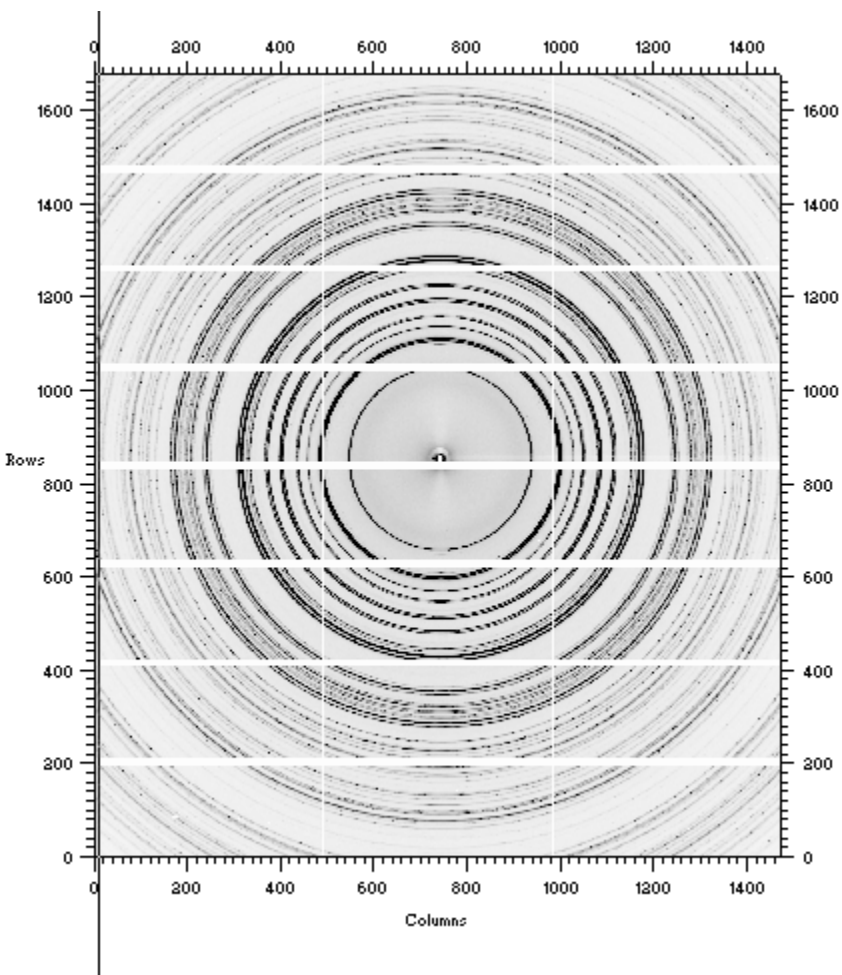


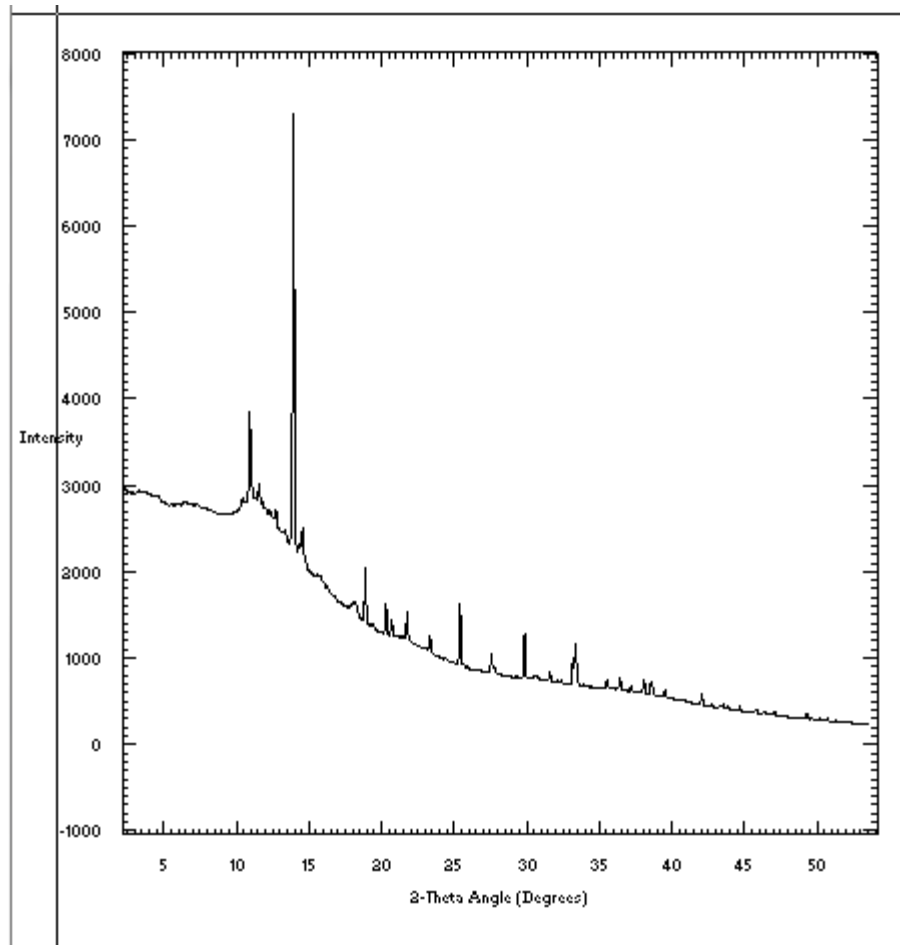
## X-ray powder diffraction: Tutorial

- From raw data to integrated data
- Phase identification
- Pattern simulation
- Quantitative analysis
- Thermal expansion determination

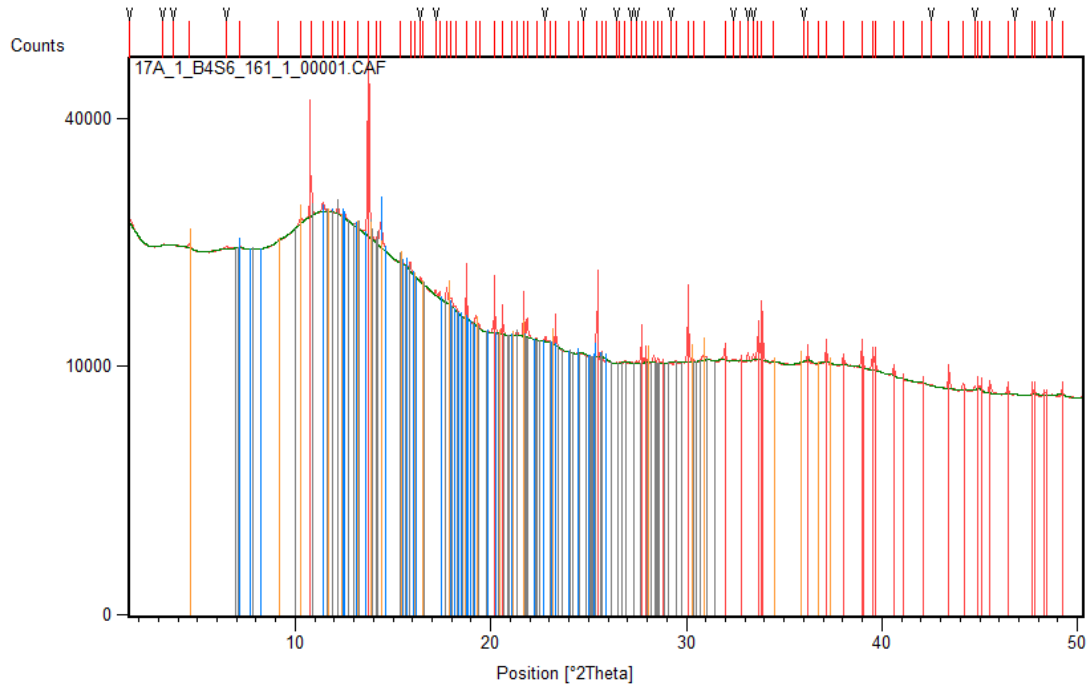
# 2D raw data



# Integrated data



# Phase identification



Isolines 3D 2D Compare Analyze Pattern

Pattern List Scan List Peak List Anchor Scan Data

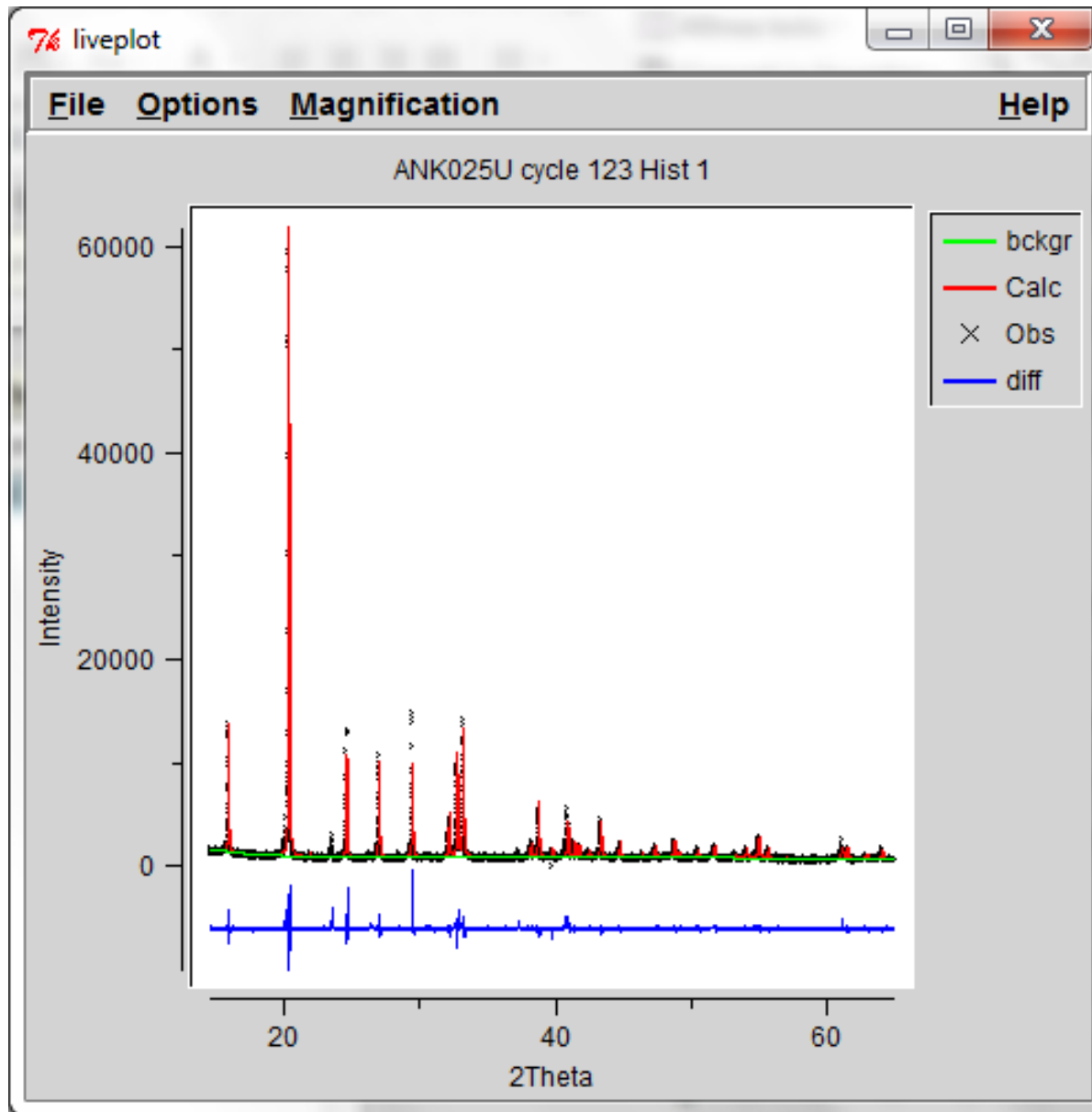
Accepted: Ref. Pattern: 00-019-0931 Scale factor: 0.047

No.	Visib.	Ref. Code	Score	Compound Name	Chem
1	<input checked="" type="checkbox"/>	00-005-0490	70	Quartz, low	Si O2
2	<input checked="" type="checkbox"/>	00-009-0466	38	Albite, ordered	Na Al Si3 O8
3	<input checked="" type="checkbox"/>	00-019-0931	32	Orthoclase	K Al Si3 O8
4	<input checked="" type="checkbox"/>	00-002-0058	25	Muscovite	H2 K Al3 Si3 O12

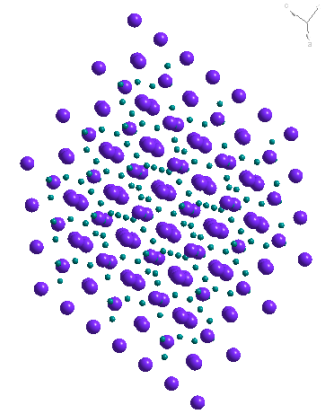
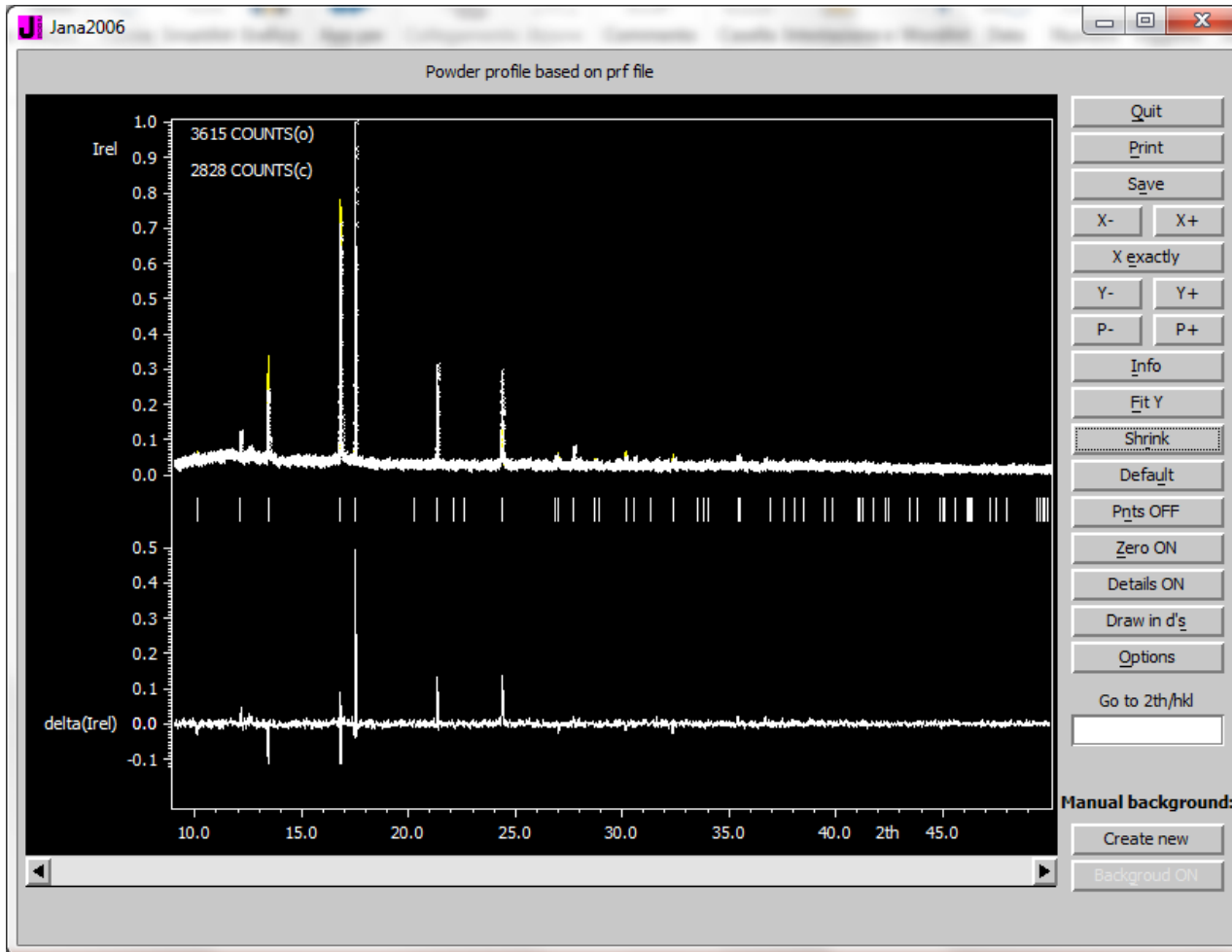
Candidates:

No.	Ref. Code	Scale F.	Compound Name	Chemical Formula

# Pattern simulation – lattice parameter determination – quantitative analysis



# Advanced: crystal structure determination



<https://drive.google.com/open?id=0B0bfcGomFpKYekVET3J1cFVvdTA>

- Software for data reduction (FIT2D)
- Software for Rietveld analysis (GSAS)
  
- Others: few programs for data conversion (i.e. ConvX...)
- Jana2006 (advanced, for structure determination, single crystal...)
- Diamond (old version, for structure visualization)
- Powdercell (for powder pattern simulation)