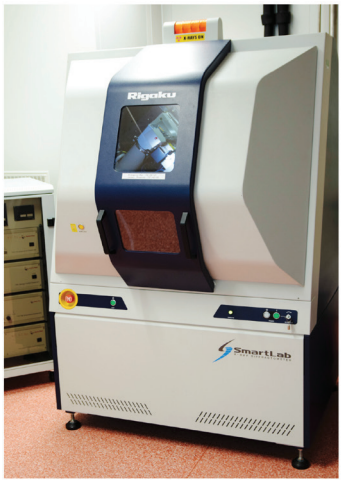
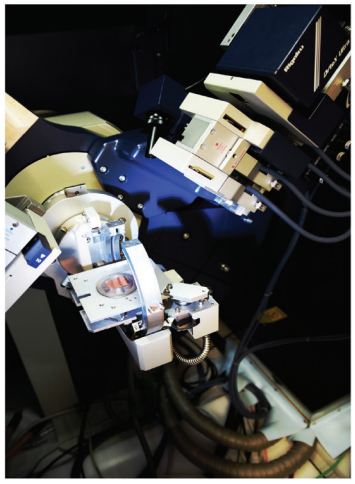
X-ray Powder Diffractometer

Rigaku Smartlab 3kW

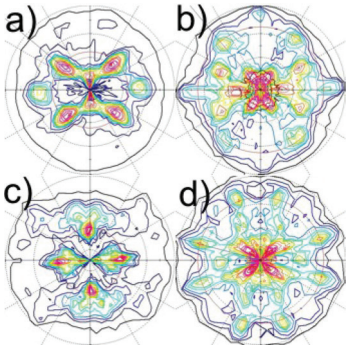




DESCRIPTION

Rigaku SmartLab 3 kW is an automatic X-Ray powder diffractometer with θ/θ goniometer. The Bragg-Brentano and Parallel Beam modes are complemented by use of additional accesories (Eulerian craddle, sample holders, etc.) to extend the range of measurement techniques.

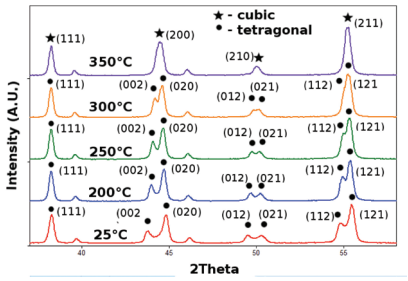
APPLICATION EXAMPLES



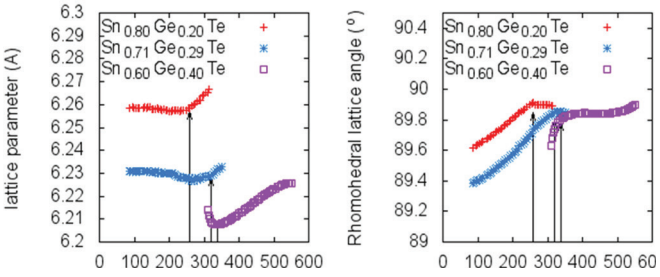
The pole figures represented texture/preferred orientation in the sample.

The Al rolled sheet is highly oriented along the planes a) (1 1 1) and c) (0 2 2).

The figures b) and d) belongs to (0 0 2) and (1 1 3) planes and shows the existence of big oriented crystallites.



Phase transformation of Perovskite powder during heating up to 350 °C in air, use of High Temperature Chamber HTK1600



Lattice parameter temperature dependence of the SnGeTe ternary alloy showing ferroelectric phase transition (denoted by black arrows). The experiment were performed using TTK450 chamber cooled with liquid nitrogen

SPECIFICATION

Phase analysis	determination of presence and amount of curent phases in material
Texture	distribution of prefferential crystallographic orientation (texture)
Residual stress	non-destructive measurement of residual stress
Reflectivity	thickness of thin layers, its density, roughness of surface and interfaces
In-situ High temperature	In-situ observation of material up to 1600 °C in vacuum and air
In-situ Low temperature	In-situ observation of material at temperatures from -193 °C to +450 °C
In-situ Environmental	In-situ observation of material up to 900 °C in reactive gasses or low vacuum

PUBLICATIONS

(1) Železný, V. et al. Temperature-dependent far-infrared reflectance of an epitaxial (BaTiO3)8/(SrTiO3)4 superlattice. Phys. Rev. B 95, 214110 (2017)
(2) Castkova, K. et al. Electrospinning and thermal treatment of yttria doped zirconia fibres. Ceram. Int. 43, 7581-7587 (2017)
(3) Tkachenko, S. et al. Isothermal oxidation behavior of experimental Ti–Al–Si alloys at 700 °C in air. J. Alloy. Comp., 694, 1098-1108 (2017)
(4) Abdel-Mohsen, A. M. et al. Novel chitin/chitosan-glucan wound dressing: Isolation, characterization, antibacterial activity and wound healing properties. Int. J. Pharm. 510, 86-99 (2016)
(5) Novak, M. et al. Two paramagnetic types of cookeite from the Dolni Bory-Hate pegmatites, Moldanubian zone, Czech Republic: Proximal and distal alteration producsts of Li-bearing sekaninaite. Can. Mineral. 53, 1035-1048 (2015)
(6) Castkova, K. et al. Chemical Synthesis, Sintering and Piezoelectric Properties of Ba0.85Ca0.15Zr0.1Ti0.9O3 Lead-Free Ceramics. J. Am. Ceram. Soc. 98, 2373-2380 (2015)
(7) Trunec, M et al. Effect of Phase Structure on Sintering Behavior of Zirconia Nanopowders. J. Am. Ceram. Soc. 96, 3720-3727 (2013)

MORE INFO

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