CANADIAN LIGHT SOURCE Inc. REIXS General User Mail-In Form

Project number: 32G11350

Principal Investigator/Spokesperson: Ronny Sutarto

Endstation: ☒**RSXS** ☐**RIXS**

Sample Information					
#	**Sample Name / ID**	**Type**	**Chemical Composition**	**Lattice Parameter**	**Additional Information**
1	LAOSTO	Thin Film	Film: LaAlO3 (10 uc) Substrate: SrTiO3	Film: a=b=c= 3.795 Å Substrate: a=b=c= 3.905 Å	Additional information
2	YBCO	Crystal	$YBa_2Cu_3O_{6+\delta}$	Orthorhombic unit cell: a = 3.831 Å b = 3.887 Å c = 11.75 Å	Size of crystal is 2x2 mm2. There are two dopings (δ=0.5 and δ=1). Both have been pre-oriented with the horizontal marking for the bc plane. Photo and Laue picture is attached.
3	LAOYSZ-001	Thin Film	Film: LaAlO3 (4 uc) Substrate: Yttria stabilized ZrO2	N/A	Buffer layer of LSMO (1uc) is inserted at the interface

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Experimental procedures

- Please copy the table below in accordance to the number of samples listed in the "Sample Information" table above.
- If needed, please add the number of lines in the table by clicking the plus button on the right.
- For "[Scan Type]: Scan Range" column, the sequence for the Scan Range is initial value, final value, and step with a default of 1 sec counting time. [Scan type] is optional and can be used to specify other standard scans, for example, lscan, tscan, etc. for the RSXS endstation or Tscan for the RIXS endstation.
- If a custom region or mesh scan needed, please specify in the "Additional Information" column.

		Sample Numbers: 1 and 3					
Scan #	**Experimental Technique**	**[Scan Type]: Scan Range (initial, final, step, [time])**	**Polarization**	**T (K)**	**Energy (eV)**	**Detectors**	**Additional Information**
1	XAS	450, 470, 0.1	lv-	300	N/A	MCP	Tth = 130, th = 30, MCP in the scattering plane
2	fix-energy RXR	-1, 150, 0.5	lh	20	455	MCP	Tth = 130, th = 30, MCP in the scattering plane
3	fix-energy RXR	-1, 150, 0.5	lv-	20	455	MCP	Tth = 130, th = 30, MCP in the scattering plane
4	fix-angle RXR	450, 470, 0.1	cl	50	N/A	MCP	Tth = 60, th = 30
5	fix-q RXR	470, 450, 0.1	cr	50	N/A	MCP	Q = 0 0 0.25
6	XAS	450, 470, 0.1, 2	lv-	75	N/A	SDD	Tth = 130, th = 45, SDD in the scattering plane, 2 sec. L3 and L2 edges with energy step of 0.05 eV, the rest 0.2 eV
7	XAS	520, 560, 0.1, 3	li	100	N/A	SDD	Linear inclined at 30 deg.

		Sample Numbers: 2					
Scan #	**Experimental Technique**	**[Scan Type]: Scan Range (initial, final, step, [time])**	**Polarization**	**T (K)**	**Energy (eV)**	**Detectors**	**Additional Information**
1	XAS	Align y: -3, 3, 0.1 and Align z: -3, 3, 0.1	lv-	300	931	Photodiode	Alignment of sample at th = 90, optimize y and z
2	XAS	Align y: -3, 3, 0.1	lv-	300	931	Photodiode	Alignment of sample at th= 30, optimize x until y scan matches with the previous scan
3	RSXS	lup tth, lup th, lup chi, lup phi	lv-	300	1200 and 2000	MCP	Searching Bragg peak (002) and (103) for optimizing chi and phi
4	RSXS	tscan 300, 25, 0.25, 2	lv-	N/A	931	MCP	Sit at ubr 0.3 0 1.2, cooling down

5	RSXS	th scan: -10, 10, 0.1	lv-	65	931	SDD	CDW scan at ubr 0.3 0 1.2, Repeat 5x
6	RSXS	Hscan: 0.2, 0.4, 0.005	li	65	931	SDD	Scan at L = 1.2 with linear inclined at 45 deg
7	RSXS	Linear inclined scan: -90, 90, 1	li	65	931	SDD	CDW scan at ubr 0.3 0 1.2, Repeat 2x

Date of Sample Delivery: 12/17/2020	
Principle Investigator Signature: Ronny Sutarto	**Date: 12/17/2020**

Beamline Scientist Signature: Ronny Sutarto	**Date: 12/17/2020**