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

**Project number:** 32S10257

**Principal Investigator/Spokesperson:** Teak Boyko

**Endstation:** ☐**RSXS** ☒**RIXS**

| Sample Information | | | | | |
|---|---|---|---|---|---|
| **#** | **Sample Name / ID** | **Type** | **Chemical Composition** | **Lattice Parameter** | **Additional Information** |
| **1** | Lithium Iridium Oxide 3 | Thin Film | $Li_3IrO_4$ | N/A | Needs to be mounted on carbon tape in an inert atmosphere; glove bag or equivalent. Argon atmosphere is best, but nitrogen is adequate. |
| **2** | Lithium Iridium Oxide 2 | Thin Film | $Li_2IrO_4$ | N/A | Needs to be mounted on carbon tape in an inert atmosphere; glove bag or equivalent. Argon atmosphere is best, but nitrogen is adequate. |
| **3** | Lithium Iridium Oxide 1 | Thin Film | $LiIrO_4$ | N/A | Needs to be mounted on carbon tape in an inert atmosphere; glove bag or equivalent. Argon atmosphere is best, but nitrogen is adequate |
| **4** | Iridium Oxide | Powder | $IrO_4$ | N/A | Mount on copper tape. |
| **5** | Magnesium Oxide | Powder | MgO | N/A | Mount on copper tape. |

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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: 1-4** | | | | | |
|---|---|---|---|---|---|---|---|
| **Scan #** | **Experimental Technique** | **[Scan Type]: Scan Range (initial, final, step, [time])** | **Polarization** | **T (K)** | **Energy (eV)** | **Detectors** | **Additional Information** |
| **1** | XAS | Escan 520 560 variable 3 | lh | 299 | N/A | SDD | Use only the SDD; take 0.2 eV steps on the pre-edge, 0.05 eV steps across the main edge (10 eV wide), 0.1 eV steps for an additional 10 eV and 0.2 eV steps for the remaining region. |
| **2** | XES | Tscan 30 1200 | lh | 299 | 560 | XES | Non-resonant XES, use MEG for spectrometer. |
| **3** | XES | Tscan 30 600 | lh | 299 | Variable | XES | Excite on all prominent peaks, use MEG for spectrometer |
| **4** | EEM | Escan 525 535 100 30 | lh | 299 | N/A | XES, SDD, XEOL | EEMs spectrum, use MEG for spectrometer, repeat 6X |
| **5** | XEOL | Tscan 30 1200 | lh | 299 | 560 | XEOL | Non-resonant XEOL spectrum. |

| | | **Sample Numbers: 5** | | | | | |
|---|---|---|---|---|---|---|---|
| **Scan #** | **Experimental Technique** | **[Scan Type]: Scan Range (initial, final, step, [time])** | **Polarization** | **T (K)** | **Energy (eV)** | **Detectors** | **Additional Information** |
| **1** | XAS | Escan 520 560 variable 3 | lh | 299 | N/A | SDD | Same as scan 1 for samples 1-4. |
| **1** | XAS | Tscan 30 600 | lh | 299 | 560 | XES | Same as scan 2 for samples 1-4. |

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|---|---|
| **Date of Sample Delivery: 12/17/2020** | |
| **Principle Investigator Signature:** Teak D. Boyko | **Date: 12/17/2020** |

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|---|---|
| **Beamline Scientist Signature:** Teak D. Boyko | **Date: 12/17/2020** |