WASHINGTON STATE UNIVERSITY
Dynamic Compression Sector

DCS Experimental Information Collection Form
XRD - Plate Impact Experiment

**Experimental Overview**

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| **Experiment Title**: |
| **Experiment Dates**: |
| **Lead Experimenter** Name, Institution, Email: |
| **Additional Experimenters** Name, Institution, Email: |
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| **Scientific Objective**: |
| **Number of experiments** required to achieve scientific objective: |
| **List of Material(s) and Equipment:** |

**Experimental Parameters**

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| **X-ray Configuration:** Undulator with Multilayer Monochromator (MLM)<br>Please be open to discuss alternative energies during the conference call.<br>(Configuration change with spectral scan = approx. 6-8 hours) | **Undulator:**<br>☐ U14, 22 KeV, with MLM<br>☐ U23, with MLM<br>☐ 35 KeV ☐ 48 KeV; ☐ Other: _____ |
| **Detector Configuration:**<br>(Scintillator Size change = approx. 3 hours)<br>(Detector Position change = approx. 1 hour) | **Scintillator Size:**<br>☐ 75 mm; ☐ 120 mm; ☐ 150 mm<br>**Detector Distance:**<br>☐ As close as possible (~150 mm); ☐ Other: _____<br>**Detector Lateral Offset:**<br>☐ 0 mm (beam at scintillator center); ☐ Other: _____ |
| **Diffraction Geometry**<br>(Change in Geometry = approx. 2 hours) | ☐ **Transmission**<br>☐ Gun Angle: -28°; ☐ Other: _____<br>☐ **Reflection**<br>Gun Angle (< 10°): _____ |
| **Is target rotation about the barrel axis needed**? ±10° range of motion<br>(Installation time = approx. 1 hour) | **Select one:**<br>☐ Yes<br>☐ No |

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| **Beam size at target:**<br>Standard size for expt. in D and E hutches = 300 horizontal/800 vertical (µm) | **Specify each:**<br>Horizontal (µm): _____<br>Vertical (µm): _____ |
| **Detector Timing Trigger:**<br>1.2 µsec from trigger to 1st frame | ☐ TOBB (trigger at 50% transmission)<br>☐ PZT (must fully contact within impactor radius) |
| **Target/probe configuration:**<br>For standard target design see<br>DCS Impact Target Fabrication Manual | ☐ Standard DCS<br>☐ User-provided design (attach drawing) |
| **Velocimetry** | ☐ **User supplied probes -** Describe probes:<br>_____<br><br>☐ **VISAR** (1 probe)<br>Available VPFs (m/s/fringe); select two:<br>☐ 72 ☐ 95 ☐ 181 ☐ 308 ☐ 458 ☐ 945<br><br>☐ **PDV -** Number of Probes: _____<br>☐ Homodyne<br>☐ Heterodyne<br>Reference Beam Frequency Shift:<br>☐ +6 GHz (standard)<br>☐ Other (-1 GHz to +8 GHz): _____ |
| **Details of issues from last DCS visit:** | |

**Useful Target and Configuration Detail**

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| **Attachment One**: Drawing of experimental configuration that includes sample assembly, x-rays to gun angle, detector plane, detector distance and the desired field of view. |
| **Attachment Two**: Detailed drawing of the target assembly. It should identify the various target components and materials used. Please include any non-standard details or unusual requests in the diagram. |
| **Attachment Three**: If the sample has been previously studied at DCS, please provide ambient x-ray diffraction images (and dates of previous campaign). If not, have ambient diffraction pattern ready from other sources or from simulation. |

**Shipping & Publication Requirements**

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| **Shipping:** Review shipping requirements. If shipping materials in advance of your arrival date, provide shipment tracking numbers to dcs.admin@wsu.edu.<br>**Is your shipment greater than 50lbs or contains hazardous materials**? ☐Yes ☐No |
| **Publications:** Review publication requirements for all work conducted at the DCS. Users are expected to publish results in peer-reviewed journals within a reasonable period (~1 year) after scheduled experiment time.<br>**Please indicate the anticipated timeline for publishing the results from your upcoming DCS experiments:** |