<table>
<thead>
<tr>
<th>Type of equipment: microscopy, spectroscopy, chromatography, mechanical/rheological properties, polymer processing/printing, nanoparticle characterization, biological evaluation</th>
<th>Location (e.g. Gillies lab, Nanofab, SSW)</th>
<th>Instrument name</th>
<th>Manufacturer and model, date</th>
<th>Overall capabilities</th>
<th>Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biological Evaluation</td>
<td>London Regional Proteomics Centre (Functional Proteomics Facility Medical Sciences Building Room 351)</td>
<td>Gel Preparation Instrument</td>
<td>Ettan IPGphor II</td>
<td>Performs first dimension of 2D gel electrophoresis, protein isoelectric focusing (IEF). Can run up to 12 IPG strips from 7cm to 24 cm. Both fixed and variable -length strip holders available.</td>
<td>Ms. Victoria Clarke Ms. Kristina Jurcic <a href="mailto:fpf@uwo.ca">fpf@uwo.ca</a> 519-661-2111 x86950</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>BIO-RAD protean Plus Dodeca Cell</td>
<td>Accomodates up to 12 large gels. Equipped with cell cooling, recirculation, and plate electrodes. Includes the PROTEAN Plus hinged spacer plates, PROTEAN Plus multi-casting chamber and the model 495 gradient former.</td>
<td>Ms. Victoria Clarke Ms. Kristina Jurcic <a href="mailto:fpf@uwo.ca">fpf@uwo.ca</a> 519-661-2111 x86950</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>BIO-RAD Mini-PROTEAN 3 Dodeca Cell</td>
<td>Capable of running multiple polyacrylamide gels simultaneously. Equipped with a built in cooling coil attached to an external refrigerator circulator to prevent overheating. A stirbar maintains uniform buffer temperature.</td>
<td>Ms. Victoria Clarke Ms. Kristina Jurcic <a href="mailto:fpf@uwo.ca">fpf@uwo.ca</a> 519-661-2111 x86950</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>BIO-RAD Criterion Dodeca Cell</td>
<td>Used to run 1 to 12 Criterion gels simultaneously.</td>
<td>Ms. Victoria Clarke Ms. Kristina Jurcic <a href="mailto:fpf@uwo.ca">fpf@uwo.ca</a> 519-661-2111 x86950</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>BIO-RAD PROTEAN Dodeca Stainer</td>
<td>Gel staining device that accomodates up to 12 gels. Compatible with Bio-Safe colloidal Coomassie Brilliant Blue G-250 stain, Coomassie Brilliant Blue R-250 stain, SYPRO Ruby protein gel stain, mass spectrometry compatible Dodeca Silver stain kit and the original Silber stain kit.</td>
<td>Ms. Victoria Clarke Ms. Kristina Jurcic <a href="mailto:fpf@uwo.ca">fpf@uwo.ca</a> 519-661-2111 x86950</td>
</tr>
<tr>
<td>Biological Evaluation</td>
<td>London Regional Proteomics Centre (Functional Proteomics Facility Medical Sciences)</td>
<td>Gel Imaging and Analysis</td>
<td>Epson Perfection 4990 Photo Scanner</td>
<td>Contains a built-in transparency unit with moving light source. It can scan gels up to 8.5” x 11.7” in size.</td>
<td>Ms. Victoria Clarke Ms. Kristina Jurcic <a href="mailto:fpf@uwo.ca">fpf@uwo.ca</a> 519-661-2111 x86950</td>
</tr>
<tr>
<td>Equipment</td>
<td>Description</td>
<td>Contact Information</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------</td>
<td>-------------</td>
<td>---------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>ProXPRESS 2D Proteomics Imaging System</strong></td>
<td>UV/Visible transmission and fluorescence imager capable for measurements on a variety of media including gels, microscope slides, tissue culture plates and exposed film. Maximum scanning area 330 x 270 mm and resolution up to 33 microns. 2D imaging is equipped with the following filter: excitation: 460/80, 480/30, 550/10 emission: 530/30, 650/150, 580/10 for fluorescence scan, as well as 2/0 for silver and coomassie scan.</td>
<td>Ms. Victoria Clarke Ms. Kristina Jurcic <a href="mailto:fpf@uwo.ca">fpf@uwo.ca</a> 519-661-2111 x86950</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>GE Storm 820 Phosphorimager</strong></td>
<td>Performs autoradiography for nucleic acid and protein gel analysis. Scan area can be as large as 35x 43 cm.</td>
<td>Ms. Victoria Clarke Ms. Kristina Jurcic <a href="mailto:fpf@uwo.ca">fpf@uwo.ca</a> 519-661-2111 x86950</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Progensis SameSpots</strong></td>
<td>2D gel image analysis tool that allows for spot alignment at the pixel level, resulting in 100% matching across all gels in an experiment.</td>
<td>Ms. Victoria Clarke Ms. Kristina Jurcic <a href="mailto:fpf@uwo.ca">fpf@uwo.ca</a> 519-661-2111 x86950</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Ettan Spot Picker</strong></td>
<td>Robotic system designed to pick protein spots from 1D or 2D gels and transfer the picked gel spots into a 96 well microplate in preparation for automatic digestion. Manual and Automatic functions are available. Capable of picking up to 384 plugs in any single picking run.</td>
<td>Ms. Victoria Clarke Ms. Kristina Jurcic <a href="mailto:fpf@uwo.ca">fpf@uwo.ca</a> 519-661-2111 x86950</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Waters MassPREP Station for Automated In-gel Digestion</strong></td>
<td>Designed for automated de-staining, reduction, alkylation, in-gel proteolytic digestion of proteins and extraction of peptides. After extraction, peptide solutions are lyophilized for minimal sample loss, complete process takes 2-3 days. Allows for two 96-well plates to be processed simultaneously.</td>
<td>Ms. Victoria Clarke Ms. Kristina Jurcic <a href="mailto:fpf@uwo.ca">fpf@uwo.ca</a> 519-661-2111 x86950</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>LC-MALDI Prep</strong></td>
<td>Not implemented yet.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Biological Evaluation**

<table>
<thead>
<tr>
<th>Location</th>
<th>Equipment</th>
<th>Contact Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>London Regional Proteomics Centre (Medical Sciences Building Room 394)</td>
<td>Surface plasmon resonance system</td>
<td>Dr. James Choy <a href="mailto:jchoy4@uwo.ca">jchoy4@uwo.ca</a> 519-661-3161 Lee-Ann Briere <a href="mailto:lbriere2@uwo.ca">lbriere2@uwo.ca</a> 519-661-2111 x85302</td>
</tr>
<tr>
<td>London Regional Proteomics Centre (Medical Sciences Building Room 394)</td>
<td>Surface plasmon resonance system</td>
<td>Dr. James Choy <a href="mailto:jchoy4@uwo.ca">jchoy4@uwo.ca</a> 519-661-3161 Lee-Ann Briere <a href="mailto:lbriere2@uwo.ca">lbriere2@uwo.ca</a> 519-661-2111 x85302</td>
</tr>
<tr>
<td>Biological Evaluation</td>
<td>Gillies Lab MSA 3210</td>
<td>Plate Reader</td>
</tr>
<tr>
<td>-----------------------</td>
<td>----------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Chromatography</td>
<td>Gillies Lab MSA 3210</td>
<td>GPC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GPC/HPLC</td>
</tr>
<tr>
<td>Chromatography</td>
<td>Biotron</td>
<td>dual GC-uECD/TCD</td>
</tr>
<tr>
<td>Chromatography</td>
<td>Biotron</td>
<td>GC-TCD</td>
</tr>
<tr>
<td>Chromatography</td>
<td>Biotron</td>
<td>dual GC-uECD/TCD</td>
</tr>
<tr>
<td>Chromatography</td>
<td>Biotron</td>
<td>GC-MS/FID</td>
</tr>
<tr>
<td>Chromatography</td>
<td>Biotron</td>
<td>Inductively Coupled Plasma-MS</td>
</tr>
<tr>
<td>Chromatography</td>
<td>Western Science Centre Room S4 (Laboratory for Stable Isotope Science)</td>
<td>Ion chromatography</td>
</tr>
<tr>
<td>Chromatography</td>
<td>Western Science Centre Room S4 (Laboratory for Stable Isotope Science)</td>
<td>Gas Chromatographs</td>
</tr>
<tr>
<td>----------------</td>
<td>---------------------------------------------------------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>Chromatography</td>
<td>London Regional Proteomics Centre (Functional Proteomics Facility Medical Sciences Building Room 351)</td>
<td>FPLC system</td>
</tr>
<tr>
<td>Chromatography</td>
<td>London Regional Proteomics Centre (Medical Sciences Building Room 394)</td>
<td>HPLC</td>
</tr>
<tr>
<td>Diffractometry</td>
<td>Western Science Centre Room S4 (Laboratory for Stable Isotope Science)</td>
<td>X-ray diffractometer</td>
</tr>
<tr>
<td>Diffractometry</td>
<td>Surface Science Western LL31</td>
<td>X-ray diffractometer</td>
</tr>
<tr>
<td>Facility</td>
<td>Beamline Details</td>
<td>Contact Information</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>-----------------------------------------------------------------------------------</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td>Chemistry X-ray Facility ChB12</td>
<td>Bruker, Apex II, 2007, equipped with Mo X-ray radiation tube, an Apex II CCD detector, 4-axis KAPPA goniometer, K780 X-ray generator. Capable of collecting data at low temperatures with the use of the Oxford cryosystems 700 series VT controller. Running the Bruker ApexII crystallographic software.</td>
<td><a href="mailto:pboyle@uwo.ca">pboyle@uwo.ca</a> 519-661-2111 x 82743</td>
</tr>
<tr>
<td>Chemistry X-ray Facility ChB12</td>
<td>Nonius, Apex II, 2007, equipped with Cu X-ray radiation tube, and Apex II CCD detector, 4-axis goniometer, FR-590 X-ray generator. Capable of collecting data at low temperatures using the Oxford cryosystems 600 series VT controller. Running the ApexII crystallographic software.</td>
<td><a href="mailto:pboyle@uwo.ca">pboyle@uwo.ca</a> 519-661-2111 x 82743</td>
</tr>
<tr>
<td>Chemistry X-ray Facility ChB12</td>
<td>Inel, CPS, Powder Diffractometer, equipped with a Cu-Xray radiation tube, Inel XRG 3000 generator and the Inel CPS 120 detector. Capable of collecting data on thin film samples with low incidence angles. Several software are available for analysis including the IMAD, Match! and Software. Also available is the PDF+ICDD data base for reference look up or to search the library for powder references.</td>
<td><a href="mailto:pboyle@uwo.ca">pboyle@uwo.ca</a> 519-661-2111 x 82743</td>
</tr>
<tr>
<td>London Regional Proteomics Centre</td>
<td>MicroMax-007F, Saturn 994+ CCD detector, comes equipped with a 4-circle 1/4 chi goniometer, mirrors, a Saturn 994+ CCD detector, crystal cooling X-stream system. Used for protein crystallography and a popular source for small molecule crystallographers who need the additional flux of a rotating anode generator.</td>
<td>Dr. Brian Shilton <a href="mailto:bshilton@uwo.ca">bshilton@uwo.ca</a> 519-661-4124     Dr. Hong Ling <a href="mailto:hling4@uwo.ca">hling4@uwo.ca</a> 519-661-3557   Lee-Ann Briere l <a href="mailto:briere2@uwo.ca">briere2@uwo.ca</a> 519-661-2111 x85296</td>
</tr>
<tr>
<td>Western Science Centre Room 54</td>
<td>Merchantek Mir 10-25 CO2 laser, BrF5 extraction line with online capabilities to the Delta Plus XL through dual-inlet mode or continuous flow. Dual chamber for analysis of reactive minerals.</td>
<td>519-661-3881 Fred J Longstaffe <a href="mailto:flongsta@uwo.ca">flongsta@uwo.ca</a></td>
</tr>
<tr>
<td>Western Science Centre Room 54</td>
<td>Merchantek LUV 266X UV laser ablation system. Fluorine extraction line online capabilities to the Delta Plus XL.</td>
<td>519-661-3881 Fred J Longstaffe <a href="mailto:flongsta@uwo.ca">flongsta@uwo.ca</a></td>
</tr>
<tr>
<td>Airlock</td>
<td>Peripheral for Merchantek Mir 10-25 laser fluorination line. Isolation devise for materials that undergo low temperature reaction with fluorinating agents such as clay minerals.</td>
<td>519-661-3881 Fred J Longstaffe <a href="mailto:flongsta@uwo.ca">flongsta@uwo.ca</a></td>
</tr>
<tr>
<td>Equipment Type</td>
<td>Location</td>
<td>Description</td>
</tr>
<tr>
<td>----------------</td>
<td>----------</td>
<td>-------------</td>
</tr>
<tr>
<td>Melt Press</td>
<td>Gillies Lab MSA 3250</td>
<td>For use with ceramics, composites, rubber, silicone, elastomers, thermoplastic resins, and powder metals testing of physical properties such as compression strength, flexural strength, shear strength, flow and colour dispersion. Used for composite molding, compression molding, crushing, forming and encapsulation.</td>
</tr>
<tr>
<td>Lyophilizer</td>
<td>Gillies Lab MSA 3250</td>
<td>Evaporation of low volume aqueous solvents from samples.</td>
</tr>
<tr>
<td>Compression Moulding</td>
<td>Fraunhofer Project Centre for Composites Research</td>
<td>Hydraulic press with maximum clamping force of 25,000kN. Maximum closing speed is 800mm/sec. Capable for SMC, LFT, High Pressure RTM materials and processes. Additional features are Foaming Cycle, Vacuum Assisted Moulding, In-Mould Coating. Hot air oven for pre-heating of co-moulding structures. Mould heating and cooling with water up to 180C and with oil up to 300C. Equipped for use with carbon fibres.</td>
</tr>
<tr>
<td>Thermoset Sheet Moulding Compound</td>
<td>Fraunhofer Project Centre for Composites Research</td>
<td>Laboratory units for development of SMC formulations. Direct Sheet Mould compound (D-SMC) line with a maximum sheet width of 800mm and a maximum throughput of 500kg/h. D-SMC line is capable of manufacturing of conventional SMC. Carbon fibre reinforcements for SMC materials. Low density fillers and alternative resin systems. Hydraulic high-speed press with a maximum press force of 25,000kN and parallelism control. Vacuum assisted compression moulding.</td>
</tr>
<tr>
<td>Mechanical Fraunhofer Project Centre for Composites Research</td>
<td>Resin Transfer Moulding</td>
<td>Includes high performance composite components with continuous fibre reinforcements based on textile structures made from glass, carbon and aramid fibres. Dieffenbacher hydraulic press with maximum clamping force of 25,000kN and parallelism control. Injection equipment; Kauss Maffei high pressure and Wolfangel low pressure RTM equipment, both with resin pre-heating capabilities. Linear and multi-axis robot systems for automated preform handling. Capable of processing different resin types including epoxy, unsaturated polyester and polyurethane.</td>
</tr>
</tbody>
</table>

| Mechanical Fraunhofer Project Centre for Composites Research | Injection Moulding Machine | KraussMaffei, KM 1,600/12,000/4,300 MXL | Capable of moulding lightweight parts up to a size of automotive front end carriers. Equipped with a fibre-reserving long-fibre injection screw. Fitted with innovative foam injection moulding technology. All thermoplastic materials, unreinforced as well as short and long-fibre reinforced granules can be processed. Equipped with a circulating hot air oven for preheating of continuous-fibre reinforced, thermoplastic organic sheets. An integrated 6-axis robot is able to load the tapes and sheets in the oven to transfer them into the mould. | vugresi@uwo.ca | 519-661-2111 x 86975 |

<p>| Mechanical Fraunhofer Project Centre for Composites Research | Injection Moulding Machine | Fiberforge, RELAY Station 1000 | Possible to manufacture continuous fibre reinforced thermoplastic components with the dimensions of 1m to 1m. Different part thicknesses and fibre orientations can be realized to create load adjusted lightweight structures. Double creel system: tape width range continuously variable between 50mm and 150mm using a tape thickness between 0.1mm and 0.4mm | <a href="mailto:vugresi@uwo.ca">vugresi@uwo.ca</a> | 519-661-2111 x 86975 |
| <strong>Mechanical</strong> | <strong>Fraunhofer Project Centre for Composites Research</strong> | <strong>Fiber Performing</strong> | <strong>With this equipment, the fiber cutting, stacking, draping and forming of these textiles is completely automated. Offers economical production of dimensionally stable and complex 3D shaped preforms using simple, modular operational principles. Up to 250kN closing force. Capable of processing a wide range of areal fabric weights with roll widths up to 2.6 meters and performs up to 2.5 meters square projected area. Robotic handling of individual fabric layers between cutting table, binder station and draping belt. Optional variable spray binder application of either thermoplastic or thermoset binders. Simulation tools available to determine blank shape and fiber orientation.</strong> | <strong><a href="mailto:vugresi@uwo.ca">vugresi@uwo.ca</a> 519-661-2111 x 86975</strong> |
| <strong>Mechanical</strong> | <strong>Western Science Centre Room 54 (Laboratory for Stable Isotope Science)</strong> | <strong>Thermogravimetric and differential analyzer Linseis</strong> | <strong>Custom designed; simultaneous TG-DT analyzer; combined vertical (1150°) and horizontal (1000°) heating systems. Best possible vacuum integrity for use in stable isotope analysis.</strong> | <strong>519-661-3881 Fred J Longstaffe <a href="mailto:flongsta@uwo.ca">flongsta@uwo.ca</a></strong> |
| <strong>Mechanical</strong> | <strong>London Regional Proteomics Centre (Functional Proteomics Facility Medical Sciences Building Room 351)</strong> | <strong>Ultracentrifuge Beckman Optima MAX</strong> | <strong>Capable of reaching speeds to 130,000 rpm. Ideal for pelleting of small particles that include viruses and subcellular organelles. Available rotors: MLS 50 Swinging-Bucket Rotor, MLA 80 Fixed Angle Rotor, MLA 130 Fixed Angle Rotor, TLN 100 Fixed Angle Rotor.</strong> | <strong>Ms. Victoria Clarke Ms. Kristina Jurcic <a href="mailto:fpf@uwo.ca">fpf@uwo.ca</a> 519-661-2111 x86946</strong> |
| <strong>Mechanical</strong> | <strong>London Regional Proteomics Centre (Medical Sciences Building Room 394)</strong> | <strong>Isothermal Titration Calorimeter MicroCal VP-ITC</strong> | <strong>Used for determination of thermodynamic parameters of ligand binding by proteins by measuring the heat generated or absorbed by a protein sample upon binding of substrate. Yield values for binding constants, reaction stoichiometry, enthalpy and entropy.</strong> | <strong>Dr. James Choy <a href="mailto:jchoy4@uwo.ca">jchoy4@uwo.ca</a> 519-661-3161 Lee-Ann Briere <a href="mailto:lbriere2@uwo.ca">lbriere2@uwo.ca</a> 519-661-2111 x85305</strong> |
| <strong>Mechanical</strong> | <strong>London Regional Proteomics Centre (Medical Sciences Building Room 394)</strong> | <strong>Analytical ultracentrifuge Beckman Optima XL-A</strong> | <strong>Versatile and accurate instrument for determining the native molecular weight and hydrodynamic properties of a protein or other macromolecule. Can also be used to probe the molecular shape of proteins or other biomolecules in solution, as well as self-association or hetero-oligomeric interactions within protein samples.</strong> | <strong>Dr. James Choy <a href="mailto:jchoy4@uwo.ca">jchoy4@uwo.ca</a> 519-661-3161 Lee-Ann Briere <a href="mailto:lbriere2@uwo.ca">lbriere2@uwo.ca</a> 519-661-2111 x85305</strong> |</p>
<table>
<thead>
<tr>
<th>Department</th>
<th>Location</th>
<th>Equipment</th>
<th>Description</th>
<th>Contact Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanical</td>
<td>London Regional Proteomics Centre (Medical Sciences Building Room 394)</td>
<td>Differential Scanning Calorimeter</td>
<td>MicroCal VP-DSC</td>
<td>Dr. James Choy  <a href="mailto:jchoy4@uwo.ca">jchoy4@uwo.ca</a>   519-661-3161 Lee-Ann Briere <a href="mailto:lbriere2@uwo.ca">lbriere2@uwo.ca</a>   519-661-2111 x85305</td>
</tr>
<tr>
<td>Mechanical</td>
<td>London Regional Proteomics Centre (Medical Sciences Building Room 394)</td>
<td>Stopped flow system</td>
<td>BioLogic SFM-400</td>
<td>Dr. James Choy  <a href="mailto:jchoy4@uwo.ca">jchoy4@uwo.ca</a>   519-661-3161 Lee-Ann Briere <a href="mailto:lbriere2@uwo.ca">lbriere2@uwo.ca</a>   519-661-2111 x85305</td>
</tr>
<tr>
<td>Mechanical</td>
<td>Western Paleomagnetic &amp; Petrophysical Laboratory (Western Sciences Centre, Room 36)</td>
<td>Magnetic susceptibility measurements</td>
<td>Sapphire SI2b, 1994</td>
<td>Dr. Phil J.A. McCausland <a href="mailto:pmccausl@uwo.ca">pmccausl@uwo.ca</a></td>
</tr>
<tr>
<td>Mechanical</td>
<td>Western Paleomagnetic &amp; Petrophysical Laboratory (Western Sciences Centre, Room 36)</td>
<td>Spinner magnetometer</td>
<td>Schonstedt SSM-2, 1981</td>
<td>Dr. Phil J.A. McCausland <a href="mailto:pmccausl@uwo.ca">pmccausl@uwo.ca</a></td>
</tr>
<tr>
<td>Mechanical</td>
<td>Western Paleomagnetic &amp; Petrophysical Laboratory (Western Sciences Centre, Room 36)</td>
<td>Grain density measurement</td>
<td>Quantachrome Multipycnometer, 2006</td>
<td>Dr. Phil J.A. McCausland <a href="mailto:pmccausl@uwo.ca">pmccausl@uwo.ca</a></td>
</tr>
<tr>
<td>Mechanical</td>
<td>Western Paleomagnetic &amp; Petrophysical Laboratory (Western Sciences Centre, Room 36)</td>
<td>Thermal Demagnetizer</td>
<td>Magnetic Measurements, MMTD-80, 1998</td>
<td>Dr. Phil J.A. McCausland <a href="mailto:pmccausl@uwo.ca">pmccausl@uwo.ca</a></td>
</tr>
<tr>
<td>Mechanical</td>
<td>Surface Science Western LL31</td>
<td>Microhardness Testing</td>
<td>LECO LM-100 Microindentation Testser</td>
<td>Measure the hardness of materials. Using an elongated Knoop indenter capable of measuring the bulk hardness of metals, thin metal films and surface layers such as decarberization. Applied load can be adjusted from 10 grams to 1000 grams. The size of the microhardness indents vary depending on the material and applied load, but typically are approximately 100 microns in length. This means we can measure the hardness of very small areas.</td>
</tr>
<tr>
<td>Mechanical</td>
<td>Surface Science Western LL13</td>
<td>Weathering Chamber Q-SUN Xenon Test Chamber</td>
<td>Q-SUN, Q-SUNXE-3-HDSBSC</td>
<td>Simulates product damages such as crazing, hazing, fading and yellowing from exposure to sunlight, heat and moisture. This chamber can reproduce the damage caused by full-spectrum sunlight and rain over a period of months or years outdoors in a few days or weeks time. It utilizes three separate xenon lamps for a large capacity. The Q-SUN Xe-3 tester’s slide out specimen tray is 451mm x 718mm and is useful for exposing large, three-dimensional parts or components. The Xe-3 tester offers standard humidity control, and spray, back spray and chiller features. The dual spray capability allows for a second liquid such as acid rain or soap solutions, to be sprayed onto test specimens. The following standard tests can be run with this chamber: AATCC TM16, AATCC TM169, ASTM C1257, ASTM C1442, ASTM C1519, ASTM C732, ASTM C734, ASTM C793, ASTM D1148, ASTM D1670, ASTM D2565, ASTM D3451, ASTM D4101, ASTM D4303, ASTM D4355, ASTM D4434, ASTM D4459, ASTM D4637, ASTM D4798, ASTM D4811, ASTM D5019, ASTM D5071, ASTM D5383, ASTM D5398, ASTM D5819, ASTM D6083, ASTM D6551, ASTM D6577, ASTM D6662, ASTM D6695, ASTM D6878, ASTM D7356, ASTM D750, ASTM D7869, ASTM D882, ASTM D904, ASTM D925, ASTM F1164, ASTM F1515, ASTM F2366, ASTM G151, ASTM G155, GM 9125P, IEC 61345, ISO 105-B02 (EN) (DIN), ISO 105-B04 (EN) (DIN), ISO 105-B06 (EN) (DIN), ISO 105-B07 (EN) (DIN), ISO 11341 (EN) (DIN), ISO 12040, ISO 29664, ISO 4892-1 (EN) (DIN), ISO 4892-2 (EN) (DIN), SAE J2412, SAE J2527, VW PV 1306, VW PV 3929, and VW PV 3930.</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Dr. Sridhar Ramamurthy</td>
<td><a href="mailto:sramamur@uwo.ca">sramamur@uwo.ca</a></td>
<td>519-661-2111 Ext. 86870</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mechanical Surface Science Western LL13</td>
<td>QUV Tester - Accelerated Weathering Tester</td>
<td>QUV, QUV/SPRAY/RP</td>
<td>Reproduces the damage caused by sunlight, rain and dew. It tests materials by exposing them to alternating cycles of UV light and moisture at controlled, elevated temperatures. To simulate outdoor weathering, the QUV accelerated tester exposes materials to alternating cycles of UV light and moisture at controlled, elevated temperatures. It simulates the effects of sunlight using special fluorescent UV lamps. It simulates dew and rain with condensing humidity and/or water spray. Types of UV weathering damage include color change, gloss loss, chalking, cracking, crazing, hazing, blistering, embrittlement, strength loss and oxidation. Two types of lamps are available with our QUV weathering chamber. The UVA-340 lamps give an excellent simulation of sunlight in the critical short wavelength region from 365 nm down to the solar cut-off of 295 nm. The UVB-313 lamps maximize acceleration utilizing short-wave UV that is more severe than the UV normally found at the earth’s surface. Consequently, these lamps may produce unrealistically severe results for some materials. UVB-313 lamps are most useful for QC and R&amp;D applications, or for testing very durable materials. The following test standards are applicable for our QUV weathering chamber: AAMA 624, AATCC TM186, ASTM C1257, ASTM C1442, ASTM C1501, ASTM C1519, ASTM C732, ASTM C734, ASTM C793, ASTM D1148, ASTM D1670, ASTM D3424, ASTM D3451, ASTM D4101, ASTM D4329, ASTM D4434, ASTM D4587, ASTM D4674, ASTM D4799, ASTM D4811, ASTM D5208, ASTM D5894, ASTM D6577, ASTM D750, ASTM D882, ASTM D904, ASTM D925, ASTM E3006, ASTM F1164, ASTM F1945, ASTM G151, ASTM G154, EN 13523-10 (DIN), GM 9125P, IEC 61215, IEC 61345, ISO 11507 (EN) (DIN), ISO 29664, ISO 4892 1 (EN) (DIN) 3 (EN), ISO 4892 1 (EN) (DIN), and SAE</td>
<td></td>
</tr>
</tbody>
</table>

Dr. Sridhar Ramamurthy | sramamur@uwo.ca | 519-661-2111 Ext. 86870 |
Cyclic salt spray testing was developed to simulate exposures to outdoors and cyclic corrosion testing was found to provide structure, morphology, and corrosion rate results similar to those from obtained outdoor exposures. In our Q-FOG cyclic corrosion tester, the specimens are exposed to a series of different environments in a repetitive cycle that mimics outdoors. Simple cycles, such as Prohesion, may consist of cycling between salt fog and dry conditions. More sophisticated automotive methods may call for multi-step cycles that incorporate humidity, along with salt spray and dry-off. With our Q-FOG chamber, it is possible to cycle through all of the most significant corrosion environments. In addition, more complex exposure cycles can be manually programmed in our chamber and we will be able to run these tests to meet a wide variety of industry requirements. Numerous accelerated corrosion tests can be performed: ASTM B117, ASTM D1654, ASTM D1735, ASTM D2247, ASTM D2803, ASTM D3451, ASTM D4585, ASTM D5894, ASTM D6577, ASTM D6675, ASTM G85 (Prohesion Test), BS 2011 Pt2.1 Kx, BS 2011 Pt2.1 Kb, BS 3900 F12, BS 5466 1, BS 7479, DIN 50017, DIN 50021, Ford CETP 00.00-L-467, Ford FLTM BI 103-01, Ford FLTM BI 104-01, Ford FLTM BI 104-02, Ford FLTM BI 123-03, Ford FLTM BQ 105-01, GM 4298P, GM 4465P, GM 9540P, GMW 14729 (Option A), GMW 14872, GMW 3286, Honda HES D6001 sec 4.3, Honda HES D6501 sec 3.15.1, Honda HES D6501 sec 3.15.2, IEC 60068-2-11, ISO 16701, ISO 6082-2-52, ISO 6270-2, ISO 7253, ISO 9227, JIS H8502 Se. 7.3, JIS Z2371 Sect. 7.2.3, Mazda MES MN601, Mazda MES MN601, MCT-2M, Mazda MES MN601, MCT-3M, MIL-STD-202 (101E), Renault ECC1 - D17 2028, SAE J1959, SAE J2334, Toyota TSH 1555G, Volvo STD 1022 1125, Volvo STD 432 0014, and
<table>
<thead>
<tr>
<th>Mechanical</th>
<th>Surface Science Western LL13</th>
<th>Differential Scanning Calorimeter (DSC)</th>
<th>Mettler Toledo DSC 3, 22790</th>
<th>Used to measure enthalpy changes due to changes in the physical and chemical properties of a material as a function of temperature or time. Allows to identify or compare materials and to characterize them with regard to their structure or use. Temperature range: −100 to 700 °C Atmosphere: nitrogen or oxygen gas Heating rate: 0.02 to 300 °C/min Cooling rate: 0.02 to 50 °C/min Selected Applications in Industry: Measurement of characteristic temperatures of materials (e.g., melting, crystallization, glass transition) Identification or comparison of solids, powders, fibres, and viscous samples such as pastes, creams, or gels Investigation of chemical reactions and kinetics (e.g., how long a material takes to cure (cross-link), vulcanization, influence of stabilizers, plasticizers, or other additives) Thermal stability measurements (e.g., oxidation induction time (OIT), oxidation onset temperature (OOT))</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanical</td>
<td>Surface Science Western LL13</td>
<td>Thermogravimetric Analysis (TGA)</td>
<td>Mettler Toledo TGA 2, 886</td>
<td>Measures the mass of a sample while the sample is heated or cooled in a defined atmosphere. The main use of TGA is to characterize materials with regard to their composition. Temperature range: room temperature to 1100 °C Atmosphere: nitrogen, air, or oxygen gas Heating rate: 0.02 to 250 °C/min Sample mass range: ≤1 g (typically 10–15 mg used) Selected Applications in Industry: Characterization of the thermal properties of materials such as plastics, elastomers and thermosets, mineral compounds, and ceramics, as well as for chemical products Measurement of composition (e.g., organics, carbon black, filler), purity, decomposition reactions, decomposition temperatures, and absorbed moisture content</td>
</tr>
<tr>
<td>Mechanical</td>
<td>Western Paleomagnetic &amp; Petrophysical Laboratory (Western Sciences Centre, Room 36)</td>
<td>Demagnetizer</td>
<td>Saphire Instruments Si-4 AF, 2008</td>
<td>The differential probe extends the measurement capability of oscilloscopes in digital communication and high speed digital circuits.</td>
</tr>
<tr>
<td>Microscopy Facility</td>
<td>Scanning Microscope Type</td>
<td>Model</td>
<td>Description</td>
<td>Contact</td>
</tr>
<tr>
<td>---------------------</td>
<td>--------------------------</td>
<td>-------</td>
<td>-------------</td>
<td>---------</td>
</tr>
<tr>
<td>Western Nanofabrication Facility</td>
<td>Scanning Electron Microscope</td>
<td>Leo 1540XB FIB/SEM</td>
<td>Equipped with an X-ray detector. Focused Ion Beam (FIB) enables in-situ cross sectioning for thickness measurement and elemental analysis of structures below the surface. Can also be used for the preparation of thin samples for Transmission Electron Microscopy (TEM) analysis.</td>
<td><a href="mailto:nanofab@uwo.ca">nanofab@uwo.ca</a></td>
</tr>
<tr>
<td>Western Nanofabrication Facility</td>
<td>Scanning Electron Microscope</td>
<td>Leo 1530 SEM</td>
<td>Can provide valuable insight into a variety of materials, from metals to minerals to biological structures.</td>
<td><a href="mailto:nanofab@uwo.ca">nanofab@uwo.ca</a></td>
</tr>
<tr>
<td>Western Nanofabrication Facility</td>
<td>Microscope</td>
<td>Zeiss Axioskop</td>
<td>Inspection microscope with camera.</td>
<td><a href="mailto:nanofab@uwo.ca">nanofab@uwo.ca</a></td>
</tr>
<tr>
<td>Biotron</td>
<td>Confocal Microscope: Zeiss LSM 5 Duo</td>
<td>LSM 5 Duo</td>
<td>Multipurpose confocal workstation. Delivers true 5D capability (X,Y,Z time and λ) by combining 3 instruments into one.</td>
<td><a href="mailto:biotron_microscopy@uwo.ca">biotron_microscopy@uwo.ca</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td>LSM 510</td>
<td>Multichannel point scanning offers 10 optically tunable laser excitation wavelength, variety of beamsplitters and filters. Detection ranging from UV to near IR.</td>
<td><a href="mailto:biotron_microscopy@uwo.ca">biotron_microscopy@uwo.ca</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td>LSM 5 Live detector</td>
<td>Beam shaper for rapid laser LINE scanning to capture live cell processes. 95% detection efficiency. A live cell stage is available for maintaining sensitive cell culture samples in controlled temperature, humidity and CO2 conditions.</td>
<td><a href="mailto:biotron_microscopy@uwo.ca">biotron_microscopy@uwo.ca</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td>LSM 5 Meta Detector</td>
<td>Separation and acquisition of 32 spectral channels in only 1.2 seconds. A built-in spectral database, automatic component extraction and linear unmixing technology for separation of fluorochromes. Performs emission fingerprinting. Characterizes unknown fluorescence signals through spectral analysis.</td>
<td><a href="mailto:biotron_microscopy@uwo.ca">biotron_microscopy@uwo.ca</a></td>
</tr>
<tr>
<td>Biotron</td>
<td>Electron Microscope</td>
<td>Philips 420</td>
<td>Equipped with a LaB6 filament and accelerating voltages up to 120KV, especially suitable for nanomaterials. AMT4000 camera. Equipped with an EDAX Genesis X-ray microanalysis system for materials elemental characterization. Magnification range of 46x to 820,000x.</td>
<td><a href="mailto:biotron_microscopy@uwo.ca">biotron_microscopy@uwo.ca</a></td>
</tr>
<tr>
<td>Microscopy</td>
<td>Biotron</td>
<td>Electron Microscope</td>
<td>Philips CM10</td>
<td>Equipped with a LaB6 Filament and accelerating voltages up to 100kV. Excellent system for both biological and material imaging including plant cells, viruses, fimbriae and nanoparticles, as well as structure analysis and immunoelectron microscopy. Magnification range of 18x to 450,000x; Resolution 3 Ångstrom</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Microscopy</td>
<td>Biotron</td>
<td>Compound Fluorescence</td>
<td>Zeiss, Imager Z1</td>
<td>Ideal imaging solution for a wide variety of samples with superb optics. 8 channels of fluorescence plus bright field, dark field, phase and DIC imaging. Magnification from 2.5x to 100x. High sensitivity fluorescence and high resolution colour cameras. Automated Z-stack imaging with extended depth of focus module to bring all layers into sharp relief. Stitching tiling mode for imaging whole tissues. 4D rendering software for 3D puls time rendering.</td>
</tr>
<tr>
<td>Microscopy</td>
<td>Biotron</td>
<td>Stereo Microscope</td>
<td>Zeiss, StereoLumar V12</td>
<td>Can provide a true stereo image at up to 125x magnification with sub-micrometer resolution in three fluorescent channels. It can image in both transmitted and reflected light modes. Perfect for developmental biology projects, especially those looking at fluorescent protein expression in whole organisms or tissues.</td>
</tr>
<tr>
<td>Microscopy</td>
<td>Biotron</td>
<td>Variable Pressure SEM</td>
<td>Hitachi, S-3400N Variable Pressure SEM</td>
<td>Equipped with a turbo-molecular pump for quick pump down times and reliable high vacuum performance. Suitable for imaging biological and geological specimens. Offers: high vacuum mode with both backscattered and secondary electron detectors; X-ray analysis; Peltier cooled stage and high resolution digital images. Magnification up to 300,000x. Can handle specimens up to 200mm in diameter. Can image wet or oily samples without standard SEM processing protocols. Equipped with an optical freezing stage that can work with extremely wet or temperature sensitive samples. Also useful for freeze fracture techniques that reveal detail in lipid containing materials.</td>
</tr>
<tr>
<td>Microscopy</td>
<td>EPMA Lab WSC RmG14</td>
<td>Field Emission Electron Probe microanalyzer</td>
<td>JOEL, JXA-8530F Hyperprobe, 2013</td>
<td>Capable of non-destructive quantitative analysis of micron-scale volumes for elements from B-U, with detection limits in the 100s range. Equipped with 5 wavelength dispersive X-ray spectrometers, including H-type spectrometer and L-type spectrometer for trace elemental analysis and specialized analyzing crystals for light-elemental analysis. Also includes detectors secondary electron imaging, backscattered electron imaging, panchromatic cathodoluminescence imaging, silicon drift energy dispersive X-ray spectrometer. Can be used to map elements within a material and reveal inhomogeneities. Rapid identification of mineral phases.</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Microscopy</td>
<td>EPMA Lab WSC RmG14</td>
<td>Compound Microscope</td>
<td>Olympus BX51</td>
<td>This polarizing microscope can be used for identification of isotropic and anisotropic materials, forensic analysis, thin film/polymer/crystal identification, and extraneous particulates. Equipped with a digital camera.</td>
</tr>
<tr>
<td>Microscopy</td>
<td>EPMA Lab WSC RmG14</td>
<td>Compound Microscope</td>
<td>Nixon LV100PL</td>
<td>Accomplishes advanced polarizing microscopy under both diascopic and episcopic illumination. Uses a 12V50W light source that provides brighter illumination and sharp images with high S/N ratios. Equipped with digital camera.</td>
</tr>
<tr>
<td>Microscopy</td>
<td>EPMA Lab WSC RmG14</td>
<td>Binocular Microscope</td>
<td>Nikon, SMZ1500</td>
<td>One of Nikon’s most advanced stereomicroscopes. Covers a zoom range from 0.75x to 11.25x and allows to see and photograph specimen from macroviews to high-magnification micro visualization. High intensity illuminator.</td>
</tr>
<tr>
<td>Microscopy</td>
<td>EPMA Lab WSC RmG14</td>
<td>Optical Scanner</td>
<td>Cannon Canonscan 8800F</td>
<td>Relies on a LED light source and generic profile to deliver great results from negatives, slides and prints. High-resolution scans of thin sections/grain mounts/core</td>
</tr>
<tr>
<td>Microscopy</td>
<td>Location</td>
<td>Microscope</td>
<td>Equipment/Features</td>
<td>Contact Person</td>
</tr>
<tr>
<td>------------------------------------</td>
<td>-----------------------------------------------</td>
<td>------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>Microscopy</td>
<td>London Regional Proteomics Centre</td>
<td>Mororized Inverted Microscope</td>
<td>Equipped with InVivo Scientific heated incubation chamber with adjustable temperature and Co2 levels; Prior Scientific Optiscan Motorized XY stage for multi point imaging; Prior Scientific Lumen 200 metal halide light for fluorescence; Prior Scientific motorized filter wheels for automated multichannel fluorescence; Nikon digital Sight Qi1 cooled monochrome CCD for quantitative fluorescence imaging; 20x, 40x and 100x objectives; NIS-Elements Advanced Research 6D software for timelapse, multipoint multichannel fluorescence with FRET analysis module Anit-vibration table; filter sets: BF, DAPI, FITC, TRITC and ECFP, EYFP, mcherry.</td>
<td>Ms. Victoria Clarke, Ms. Kristina Jurcic, <a href="mailto:fpf@uwo.ca">fpf@uwo.ca</a>, 519-661-2111 x86945</td>
</tr>
<tr>
<td>Microscopy</td>
<td>Western Science Centre Room S4</td>
<td>Microscope</td>
<td>Used to identify multiple phases/zoning in carbonate and altered granitoid rocks.</td>
<td>519-661-3881 Fred J Longstaffe, <a href="mailto:flongsta@uwo.ca">flongsta@uwo.ca</a></td>
</tr>
<tr>
<td>Microscopy</td>
<td>Western Science Centre Room S4</td>
<td>Microscope</td>
<td>Used to determine micro-porosity within rocks.</td>
<td>519-661-3881 Fred J Longstaffe, <a href="mailto:flongsta@uwo.ca">flongsta@uwo.ca</a></td>
</tr>
<tr>
<td>Microscopy</td>
<td>Western Science Centre Room S4</td>
<td>Microscope</td>
<td>Used for mineral identification, mineral photography.</td>
<td>519-661-3881 Fred J Longstaffe, <a href="mailto:flongsta@uwo.ca">flongsta@uwo.ca</a></td>
</tr>
<tr>
<td>Microscopy</td>
<td>Surface Science Western LL31</td>
<td>Compound Microscope</td>
<td>Optical microscope images of microelectronic devices at various magnifications. Capable of magnifications ranging from 6.5X to 1000X, interfaced to a high resolution colour digital camera that allow capture of digital images. Imaging of cross sections, microstructure from etched metallurgical cross-sections, film thickness, layer thicknesses of cross-sections, imaging of defects on surfaces.</td>
<td>Ms. Heather Bloomfield, <a href="mailto:hbloomf@uwo.ca">hbloomf@uwo.ca</a>, 519-661-2111 Ext. 86751</td>
</tr>
</tbody>
</table>
| Microscopy | Surface Science Western LL31 | Scanning Auger Microscopy (SAM) | Physical Electronics Model 710 Field Emission Scanning Auger | High-resolution secondary electron imaging, < 4 nm spatial resolution. Small-spot Auger analysis, < 8 nm spatial resolution. Floating ion gun enables fast sputtering with least damage and charge neutralization. Survey scan analysis of elements from Li to U at outer 0.5 – 5 nm of the surface. Depth profiling (Ar+ ion gun, 50 ev to 5 kV). Surface-sensitive mapping to determine the presence and spatial distribution of elements at the very outer surface. Single and multi-point analysis. Can accommodate samples of 50 mm in diameter and 1 cm tall. Auger analysis can be conducted on metals and alloys, semiconductors, minerals, polymers and glasses. Charge neutralization can be utilized for analyzing insulating samples. | Dr. Sridhar Ramamurthy  
sramamur@uwo.ca  
519-661-2111 Ext. 86870 |
| --- | --- | --- | --- | --- | --- |
| Microscopy | Surface Science Western LL07 | Confocal Laser Scanning Zeiss Axio Imager, Z2m, LSM800 | Uses laser light (405 nm wavelength) and an adjustable aperture to optically produce thin (nm to μm) focal slices to optically section a sample. By changing the distance between the sample and the objective lens, through finely controlled steps in the Z direction, and by scanning the laser in the X/Y direction, an image stack is created with each pixel of each slice containing intensity information about the investigated surface. System includes C-Epiplan-Apochromate Objectives: 5x, NA 0.2; 10x, NA 0.4; 20x, NA 0.4 LD; 20x, NA 0.7; 50x, NA 0.55 LD; 50x, NA 0.95, Piezo measured motorized stage, Brightfield and Circular-DIC reflector cubes and a TIC filter. | Dr. Sridhar Ramamurthy  
sramamur@uwo.ca  
519-661-2111 Ext. 86870 |
<table>
<thead>
<tr>
<th>Microscopy/Spectroscopy</th>
<th>Surface Science Western LL31</th>
<th>Hitachi SU8230 Regulus Ultra High-Resolution Field Emission SEM</th>
<th>Hitachi, SU8230 Bruker, D12489</th>
<th>High resolution images of surface topography, with excellent depth of field are produced with a highly-focused, scanning electron beam. Capable of obtaining some qualitative elemental information. SEM accompanied by X-ray analysis, is relative rapid, inexpensive, and non-destructive approach to surface analysis. Imaging Detectors: 1) Lower secondary electron detector for topographic imaging, 2) Upper secondary electron detector for high resolution with E x B filter, 3) Top detector with energy filtration, 4) In-lens backscattered secondary electron detector (BSE), 5) Retractable backscattered secondary electron detector (PD-BSE), 6) BF-STEM and variable collection angle DF-STEM detector. Capable of light element detection from carbon to uranium; Fast mapping of rough surfaces with no shadowing; Low voltage analysis at high magnification; Quantitate mapping, particles analysis and phase analysis.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Surface Science Western LL31</td>
<td>Hitachi SU3900 Large Chamber Variable Pressure SEM combined with an Oxford ULTIM MAX 65 SDD X-ray analyzer</td>
<td>Hitachi, SU3500 Oxford, Aztec</td>
<td>High resolution images of surface topography, with excellent depth of field are produced with a highly-focused, scanning electron beam. Capable of obtaining some qualitative elemental information. SEM accompanied by X-ray analysis, is relative rapid, inexpensive, and non-destructive approach to surface analysis. Capable of elemental analysis from carbon to uranium; Semi-quantitative analysis with detection limits of ~ 0.1 weight % for most elements; Linescans and elemental mapping.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Mr. Brad Kobe <a href="mailto:bkobe@uwo.ca">bkobe@uwo.ca</a> 519-661-2111 Ext. 89203</td>
</tr>
</tbody>
</table>
### Microscopy

<table>
<thead>
<tr>
<th><strong>Surface Science Western LL31</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hitachi SU3500 Variable Pressure SEM combined with an Oxford AZtec X-Max50 SDD X-ray analyzer</strong></td>
</tr>
<tr>
<td><strong>Hitachi, SU3500 Oxford, Aztec</strong></td>
</tr>
<tr>
<td>High resolution images of surface topography, with excellent depth of field are produced with a highly-focused, scanning electron beam. Capable of obtaining some qualitative elemental information. SEM accompanied by X-ray analysis, is a relative rapid, inexpensive, and non-destructive approach to surface analysis. Capable of elemental analysis from carbon to uranium; Semi-quantitative analysis with detection limits of ~ 0.1 weight % for most elements; Linescans and elemental mapping. The Zone II cleaner uses a combination of ultraviolet (UV) and ozone to remove hydrocarbons from a sample surface, without any damage to the sample surface. For routine imaging and EDX analysis a thin coating of carbon or gold coating can be used, while chromium or iridium can be used for ultra-high resolution imaging.</td>
</tr>
</tbody>
</table>

- **Mr. Brad Kobe** | bkobe@uwo.ca | 519-661-2111 Ext. 89203 |

### Microscopy

<table>
<thead>
<tr>
<th><strong>Surface Science Western LL31</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Zeiss, Xradia 410 Versa</strong></td>
</tr>
<tr>
<td>Non-destructive 3D imaging technique (4-D with time-based measurements) that uses a highly energetic X-Ray beam to create a series of 2D projections, whose greyscales vary with the volume’s internal density and atomic number variations. These projections are reconstructed to create a virtual 3D model, allowing users to “see” inside the sample without preparing, sectioning or destroying the sample. Minimum spatial resolution of 0.9 µm and a minimum voxel size of 100 nm at larger working distances; Automated objective carousel, with objectives: 0.4x, 4x, 10x, 20x: Advanced absorption and phase contrast capability (for soft or low atomic number materials) overcomes the limitations on traditional computer tomography; Vertical stitching mode enables the analysis of taller samples by joining tomographies from different sections of the sample; The in-situ tensile stage (500 N) enables measurements while the samples are under tensile or compression stresses.</td>
</tr>
</tbody>
</table>

- **Ivan Barker and Sridhar Ramamurthy**
<table>
<thead>
<tr>
<th>Microscopy</th>
<th>The Zircon and Accessory Phase Laboratory (B&amp;G Rm1060)</th>
<th>SEM (Secondary Electron Imaging)</th>
<th>Hitachi SU6600 FEG-SEM Inca X-Max EDS Inca Wave WDS Gatan ChromaCL HKL EBSD CNT-MC Spark-3 EPD Optical Imaging Hitachi S2500 SEM</th>
<th>Secondary Electron Imaging microscope that images the sample surface by scanning it with high energy beam of electrons up to up to 350,000x (Topography). Provides information about the sample's surface topography, composition and properties such as conductivity. Detection modes are Backscatter Electron Imaging, Energy Dispersive Spectrometry, Wavelength Dispersive Spectrometry, Nano-scale High resolution Electron Backscatter Diffraction, Colour Cathodoluminescence, Scanning Transmission Electron Microscopy.</th>
<th>Dr. Desmond Moser <a href="mailto:zaplab@uwo.ca">zaplab@uwo.ca</a> 1-519-661-2111 ext. 88397 (ZAPLab) or ext. 87873 (FEG-SEM Room)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microscopy</td>
<td>Surface Science Western LL31</td>
<td>Atomic Force Microscopy</td>
<td>Park Systems XE-100, PSIA</td>
<td>Uses fine tip to map surface morphology and mechanical and chemical properties through an interaction between the tip and surface. Used exclusively to study polymer surface structures and properties. Topographic images at a resolution on the nanometer scale and surface energy changes due to surface modification by UV/ozone treatment can be measured. Topographic images with a height resolution of ~0.1nm and lateral resolution down to nanometers. Phase imaging is especially powerful in revealing dispersions of additives in polymer composites. Friction force images to distinguish different materials, phases, and chemical properties.</td>
<td>Dr. Heng-Yong Nie <a href="mailto:hnie@uwo.ca">hnie@uwo.ca</a> 519-661-2111 Ext. 86734</td>
</tr>
<tr>
<td>Microscopy</td>
<td>Surface Science Western LL31</td>
<td>Contact Angle Goniometry</td>
<td>DSA30E, Drop Shape analyzer</td>
<td>Used for accurate measurements of surface free energy (SFE) and contact angle. Measurements capabilities: Contact angle measurements between a liquid and a solid; Surface-free energy from contact angles of several test liquids; Static, advancing and receding contact angles; Surface tension; Assessment of surface tension using the Pendant Drop Method; Analysis on inclined surfaces.</td>
<td>Ms. Mary Jane Walzak <a href="mailto:mwalzak@uwo.ca">mwalzak@uwo.ca</a> 519-661-2111 Ext. 86868 (retiring in May 2020) Ms. Becky Sarazen <a href="mailto:rebecca.sarazen@uwo.ca">rebecca.sarazen@uwo.ca</a> 519-661-2111 Ext. 86713</td>
</tr>
<tr>
<td>Microscopy</td>
<td>Surface Science Western LL31</td>
<td>Stereo Microscope</td>
<td>Wild, Heerbrugg</td>
<td>Optical microscope images of microelectronic devices at various magnifications. Capable of magnifications ranging from 6.5 X to 1000 X, and interfaced to a high-resolution colour digital camera that allow capture of digital images.</td>
<td>Ms. Heather Bloomfield    <a href="mailto:hbloomf@uwo.ca">hbloomf@uwo.ca</a>  519-661-2111 Ext. 86751</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Microscopy</td>
<td>Surface Science Western LL31</td>
<td>Digital Microscope</td>
<td>Keyence, VHX-S660E</td>
<td>Optical microscope images of microelectronic devices at various magnifications. Capable of magnifications ranging from 6.5 X to 1000 X, and interfaced to a high-resolution colour digital camera that allow capture of digital images.</td>
<td>Ms. Heather Bloomfield    <a href="mailto:hbloomf@uwo.ca">hbloomf@uwo.ca</a>  519-661-2111 Ext. 86751</td>
</tr>
<tr>
<td>Microscopy</td>
<td>Surface Science Western LL31</td>
<td>Stereo Microscope</td>
<td>Zeiss, Discovery V8</td>
<td>Optical microscope images of microelectronic devices at various magnifications. Capable of magnifications ranging from 6.5 X to 1000 X, and interfaced to a high-resolution colour digital camera that allow capture of digital images.</td>
<td>Ms. Heather Bloomfield    <a href="mailto:hbloomf@uwo.ca">hbloomf@uwo.ca</a>  519-661-2111 Ext. 86751</td>
</tr>
<tr>
<td>Microscopy</td>
<td>London Regional Proteomics Centre (Functional Proteomics Facility Medical Sciences Building Room 351)</td>
<td>IR imaging system</td>
<td>Li-COR Biosciences, Odyssey</td>
<td>Infrared imaging system that uses two independent infrared fluorescent channels for detection, enabling simultaneous two-colour target analysis.</td>
<td>Ms. Victoria Clarke    Ms. Kristina Jurcic    <a href="mailto:fpf@uwo.ca">fpf@uwo.ca</a>    519-661-2111 x86948</td>
</tr>
<tr>
<td>Nanofabrication</td>
<td>Western Nanofabrication Facility</td>
<td>Deposition</td>
<td>Angstrom Electron Beam Evaporation</td>
<td>Pristine thin film deposition of metals.</td>
<td><a href="mailto:nanofab@uwo.ca">nanofab@uwo.ca</a></td>
</tr>
<tr>
<td>Nanofabrication</td>
<td>Western Nanofabrication Facility</td>
<td>Deposition</td>
<td>Edwards Auto500 Magnetron Sputtering</td>
<td>Three magnetrons for deposition of metal, metal oxide and magnetic targets.</td>
<td><a href="mailto:nanofab@uwo.ca">nanofab@uwo.ca</a></td>
</tr>
<tr>
<td>Nanofabrication</td>
<td>Western Nanofabrication Facility</td>
<td>Deposition</td>
<td>STS Plasma Enhanced Chemical Vapour Deposition</td>
<td>Deposition of silicon nitride an silicone oxide.</td>
<td><a href="mailto:nanofab@uwo.ca">nanofab@uwo.ca</a></td>
</tr>
<tr>
<td>Nanofabrication</td>
<td>Western Nanofabrication Facility</td>
<td>Deposition</td>
<td>IKO Electroplating Bench</td>
<td>Uniform copper deposition on a 4 inch wafer.</td>
<td><a href="mailto:nanofab@uwo.ca">nanofab@uwo.ca</a></td>
</tr>
<tr>
<td>Nanofabrication</td>
<td>Western Nanofabrication Facility</td>
<td>Deposition</td>
<td>Filgen OPC80T Osmium Plasma Coater</td>
<td>Deposition of an amorphous layer of osmium on samples requiring a conductive layer for SEM analysis.</td>
<td><a href="mailto:nanofab@uwo.ca">nanofab@uwo.ca</a></td>
</tr>
<tr>
<td>Nanofabrication</td>
<td>Western Nanofabrication Facility</td>
<td>Lithography</td>
<td>Neutronix-Quintel NX4006 Mask Aligner</td>
<td>An integrated optical-mechanical, pneumatic-electrical machine that aligns and exposes substrates coated with photoresist. Uses physical mask inscribed onto high quality transparency or chromium on glass. The pattern on the mask is reproduced by means of UV irradiation onto a photoresist.</td>
<td><a href="mailto:nanofab@uwo.ca">nanofab@uwo.ca</a></td>
</tr>
<tr>
<td>Nanofabrication</td>
<td>Western Nanofabrication Facility</td>
<td>Lithography</td>
<td>Karl Suss MA6 Mask Aligner</td>
<td>Performs high resolution photolithography. Offers flexibility in the handling of irregularly shaped substrates of differing thickness. Uses a physical mask inscribed onto high quality transparency or chromium on glass. The pattern on the mask is reproduced by means of UV irradiation onto a photoresist.</td>
<td><a href="mailto:nanofab@uwo.ca">nanofab@uwo.ca</a></td>
</tr>
<tr>
<td>-----------------</td>
<td>---------------------------------</td>
<td>-------------</td>
<td>---------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Nanofabrication</td>
<td>Western Nanofabrication Facility</td>
<td>Lithography</td>
<td>Zeiss 1530 e-beam Lithography</td>
<td>Micro and nanocharacterization by electron beam induced current technique. Focused electron beam scans a photopolymer surface to reproduce a digital CAD plan. New Raith System is optimized to inscribe small features over large surfaces using as stitching mode.</td>
<td><a href="mailto:nanofab@uwo.ca">nanofab@uwo.ca</a></td>
</tr>
<tr>
<td>Nanofabrication</td>
<td>Western Nanofabrication Facility</td>
<td>Lithography</td>
<td>Solitec 5110 Spin Coater</td>
<td>Spin coater for photoresist application</td>
<td><a href="mailto:nanofab@uwo.ca">nanofab@uwo.ca</a></td>
</tr>
<tr>
<td>Nanofabrication</td>
<td>Western Nanofabrication Facility</td>
<td>Lithography</td>
<td>CEE 200 Spin Coater</td>
<td>Spin coater for photoresist application</td>
<td><a href="mailto:nanofab@uwo.ca">nanofab@uwo.ca</a></td>
</tr>
<tr>
<td>Nanofabrication</td>
<td>Western Nanofabrication Facility</td>
<td>Lithography</td>
<td>Yield Engineering YES-3TA HMDS Oven</td>
<td>Photolithography adhesion promoter</td>
<td><a href="mailto:nanofab@uwo.ca">nanofab@uwo.ca</a></td>
</tr>
<tr>
<td>Nanofabrication</td>
<td>Western Nanofabrication Facility</td>
<td>Lithography</td>
<td>Innopsys Innostamp</td>
<td>Allows to transfer and pattern of an &quot;ink&quot; onto a surface. A stamp is first made using a rubber compound to reproduce a positive 3D matrix. The stamp is brought to contact with the substrate onto which the pattern ink is transferred.</td>
<td><a href="mailto:nanofab@uwo.ca">nanofab@uwo.ca</a></td>
</tr>
<tr>
<td>Nanofabrication</td>
<td>Western Nanofabrication Facility</td>
<td>Etching</td>
<td>Trion Orion Reactive Ion Etcher</td>
<td>Room temperature oxygen plasma. Silicone/glass substrates etching.</td>
<td><a href="mailto:nanofab@uwo.ca">nanofab@uwo.ca</a></td>
</tr>
<tr>
<td>Spectroscopy</td>
<td>London Regional Proteomics Centre (Functional Proteomics Facility Medical Sciences Building Room 351)</td>
<td>Multilabel Counter</td>
<td>PerkinElmer VICTOR 1420-10</td>
<td>Used for fluorometry, luminometry, photometry, TR-fluorometry and fluorescence polarization. Includes 2-channel liquid injector to start or terminate a process.</td>
<td>Ms. Victoria Clarke 519-661-2111 x86947</td>
</tr>
<tr>
<td>Spectroscopy</td>
<td>Gillies Lab MSA 3210</td>
<td>Fluorimeter</td>
<td>Photon Technology International, 814, 2007</td>
<td>Measures steady state fluorescence and phosphorescence, phosphorescence lifetimes, luminescence, bioluminescence, and chemiluminescence</td>
<td>E. Gillies <a href="mailto:egillie@uwo.ca">egillie@uwo.ca</a></td>
</tr>
<tr>
<td>Spectroscopy</td>
<td>Gillies Lab MSA 3210</td>
<td>UV-vis Detector</td>
<td>Varian, Cary300 Bio, 2007</td>
<td>Measures Absorbance and Transmittance intensity through the UV-vis spectrum. Can be used for temperature controlled analysis. Equipped with multiecell holders</td>
<td>E. Gillies <a href="mailto:egillie@uwo.ca">egillie@uwo.ca</a></td>
</tr>
<tr>
<td>Spectroscopy</td>
<td>Gillies Lab MSA 3210</td>
<td>Zetasizer</td>
<td>Malvern, Nano-ZS, 2008</td>
<td>Size particle, Molecular Weight and Zeta potential Analysis</td>
<td>E. Gillies <a href="mailto:egillie@uwo.ca">egillie@uwo.ca</a></td>
</tr>
<tr>
<td>Spectroscopy</td>
<td>J. B. Stothers NMR facility</td>
<td>NMR Spectrometer</td>
<td>Varian, Infinity Plus 400, 2000</td>
<td>Wide-bore magnet used for solid state NMR experiments. 3-channel spectrometer with two high-power broadband amplifiers, plus high-power proton and fluorine amplifiers. Data acquisition at -120°C to 250°C.</td>
<td>Dr. Mathew Willans  <a href="mailto:chemnmr@uwo.ca">chemnmr@uwo.ca</a>  519-661-2111 x82905</td>
</tr>
<tr>
<td>-------------------------------------------------------</td>
<td>------------------------------</td>
<td>------------------</td>
<td>----------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------</td>
</tr>
<tr>
<td>Spectroscopy</td>
<td>J. B. Stothers NMR facility</td>
<td>NMR Spectrometer</td>
<td>Varian, Inova400, 2000</td>
<td>Oxford AS400/54 magnet equipped with 5mm Direct Detection Autoswitchable HFCP Manual probe. Capable of collecting data on common and odd nuclei and variable temperature experiments ranging between -80°C to +130°C. Running the VnmrJ 4.2 MI software.</td>
<td>Dr. Mathew Willans  <a href="mailto:chemnmr@uwo.ca">chemnmr@uwo.ca</a>  519-661-2111 x82905</td>
</tr>
<tr>
<td>Spectroscopy</td>
<td>Western Science Centre Room 54 (Laboratory for Stable Isotope Science)</td>
<td>FTIR</td>
<td>Bruker Vector 22</td>
<td>Press for making KBr pellets</td>
<td>519-661-3881   Fred J Longstaffe <a href="mailto:flongsta@uwo.ca">flongsta@uwo.ca</a></td>
</tr>
<tr>
<td>Spectroscopy</td>
<td>Surface Science Western LL07</td>
<td>Fourier Transform Infrared Spectroscopy</td>
<td>Bruker Tensor II system with Hyperion 2000 microscope</td>
<td>Through recording the absorbance spectrum and showing the sample absorbed wavelengths, details about the molecular structure of the sample can be determined. Particularly useful in analyzing and identifying organic and some inorganic compounds. Samples can be as small as 20um and sensitive to concentrations greater than 3-5%. Hyperion 2000 microscope equipped with micro-attenuated total reflectance, imaging capabilities, a mapping stage with mapping capabilities, grazing angle objective with polarizer, transmission/reflection.</td>
<td>Ms. Mary Jane Walzak <a href="mailto:mwalzak@uwo.ca">mwalzak@uwo.ca</a>  519-661-2111 Ext. 86868 (Will be retiring in May 2020) Ms. Becky Sarazen <a href="mailto:rebecca.sarazen@uwo.ca">rebecca.sarazen@uwo.ca</a>  519-661-2111 Ext. 86713</td>
</tr>
<tr>
<td>Spectroscopy</td>
<td>Surface Science Western LL06</td>
<td>Laser Raman Spectroscopy</td>
<td>Renishaw InVia Reflex Raman Spectrometer</td>
<td>Useful for material identification with observing the vibrational, rotational, and other low-frequency modes in a system. Three wavelengths are available 785nm, 633nm and 514nm and two gratings, 1800 and 1200 l/mm. Also equipped with polarizer and half waveplate for each laser. Capable of analysis of powders, liquids and films and depth profiling.</td>
<td>Ms. Mary Jane Walzak <a href="mailto:mwalzak@uwo.ca">mwalzak@uwo.ca</a>  519-661-2111 Ext. 86868 (Will be retiring in May 2020) Thalia Standish <a href="mailto:thalia.standish@uwo.ca">thalia.standish@uwo.ca</a> 519-661-2173</td>
</tr>
<tr>
<td>-------------------</td>
<td>-------------------------------</td>
<td>--------------------------</td>
<td>------------------------------------------</td>
<td>---------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Spectroscopy</td>
<td>Surface Science Western LL31</td>
<td>Surface Profilometry</td>
<td>KLA Tencor P-17 Surface Profiler</td>
<td>Measures the surface topographical features, covering the roughness and waviness estimation and step height measurements. Capable for obtaining a 3D topographic image of the surface from which any scan lines can be isolated for analysis. System is capable of roughness quantification for surface finishing evaluation; SIMS crater depth measurement; Thickness measurement for thin metal and polymer films; Radius of curvature measurements; 3D surface morphology for detection of defects and corrosion and general surface imaging. Profilometer allows us to measure height differences from 5 nm to 1 mm. The instrument can handle samples as large as 8 inches in diameter and as heavy as 5 lbs.</td>
<td>Dr. Heng-Yong Nie <a href="mailto:hnie@uwo.ca">hnie@uwo.ca</a>  519-661-2111 Ext. 86734</td>
</tr>
<tr>
<td>Spectrometry</td>
<td>Western Science Centre G49</td>
<td>Ruthford Backscattering Spectrometry</td>
<td>941</td>
<td>RBS is most commonly used non-destructive nuclear analytical methods. Widely used for study of thin layers and for study of multilayer systems with thickness from nm to µm. RBS is very suitable for elemental depth analysis. From such measurement it is possible to determine, with some limitations, both the atomic mass and concentration of elemental target constituents as a function of depth below the surface. Measurement with this method may be performed on amorphous as well as crystalline materials. H and He beams are supplied by the 1.7 MeV Tanderm accelerator. A dedicated ion scattering chamber houses a 4-axis manipulator and two surface barrier detectors. Data acquisition is possible both in random and channeling geometries.</td>
<td>(519) 661-2111 x 83803 Jack Hendriks <a href="mailto:jhendrix@uwo.ca">jhendrix@uwo.ca</a> Lyudmila Goncharova <a href="mailto:lgonchar@uwo.ca">lgonchar@uwo.ca</a> Peter Simpson <a href="mailto:psimpson@uwo.ca">psimpson@uwo.ca</a></td>
</tr>
<tr>
<td>Spectrometry</td>
<td>Western Science Centre G49</td>
<td>Elastic Recoil Detection Analysis</td>
<td>ERD is an ion beam analysis technique for quantitative analysis of light elements in solids. Non-destructive nuclear analytical method for depth profiflight of light elements in thin layers and multilayer systems. Measurements can be performed on amorphous as well as crystalline materials.</td>
<td>(519) 661-2111 x 83803   Jack Hendriks <a href="mailto:jhendrix@uwo.ca">jhendrix@uwo.ca</a>  Lyudmila Goncharova <a href="mailto:lgonchar@uwo.ca">lgonchar@uwo.ca</a>  Peter Simpson <a href="mailto:psimpson@uwo.ca">psimpson@uwo.ca</a></td>
<td></td>
</tr>
<tr>
<td>Spectrometry</td>
<td>Western Science Centre G49</td>
<td>Medium Energy Ion Scattering</td>
<td>MEIS is used to determine structural and compositional properties of surfaces and thin films. Dedicated UHV chamber contains a VG 6-axis sample manipulator (3 translations and 3 rotations). The MEIS technique utilized a toroidal electrostatic energy analyzer (TEA, High Voltage Engineering Europa) with an energy resolution (delta E/E) of 0.003). The position sensitive detector accepts ions scattered over a range of up to 30° with a precision of 0.2°. A spectrum of scattering events versus scattered energy and angle is collected in this experiment. Double alignment of incident and scattered ions with the crystal lattice allows high resolution measurement of the near surface structure.</td>
<td>(519) 661-2111 x 83803   Jack Hendriks <a href="mailto:jhendrix@uwo.ca">jhendrix@uwo.ca</a>  Lyudmila Goncharova <a href="mailto:lgonchar@uwo.ca">lgonchar@uwo.ca</a>  Peter Simpson <a href="mailto:psimpson@uwo.ca">psimpson@uwo.ca</a></td>
<td></td>
</tr>
<tr>
<td>Spectroscopy</td>
<td>Surface Science Western LL31</td>
<td>X-ray Photoelectron Spectroscopy (XPS) Supra</td>
<td>Kratos AXIS Supra Spectrometer, MI-600R04</td>
<td>A method characterizing surface composition. Analysis depends upon the measurement of the energies of photoelectrons that are emitted from atoms when they are irradiated by soft X-ray photons (1 – 2 keV). Capable of In-situ fracturing at low temperature; Sample heating (800°C and cooling (-100°C); Variable angle sample orientation; High precision automated stage; Depth profiling in with both monoatomic Ar+ and gas cluster beams (up to Ar3000+); Interfaced to a glove box for chemical preparation under inert atmosphere; Analysis of sample sizes up to 30 mm x 75 mm and up to 10 mm thick; Elemental and chemical imaging, small spot analysis; Multiple X-ray sources including monochromatic Al Kα, monochromatic Ag La, He(I) and He(II); Ion scattering spectroscopy (ISS) equipped.</td>
<td>Dr. Mark Biesinger <a href="mailto:biesingr@uwo.ca">biesingr@uwo.ca</a>  519-661-2111 Ext. 86701</td>
</tr>
<tr>
<td>Spectroscopy</td>
<td>Western Nanofabrication Facility</td>
<td>Profilometer</td>
<td>Tencor P7</td>
<td>Used to measure surface's profile in order to quantify its roughness.</td>
<td><a href="mailto:nanofab@uwo.ca">nanofab@uwo.ca</a></td>
</tr>
<tr>
<td>Spectroscopy</td>
<td>Western Nanofabrication Facility</td>
<td>Ellipsometer</td>
<td>Woollam Ellipsometer</td>
<td>Measures materials thickness using the materials refractive index.</td>
<td><a href="mailto:nanofab@uwo.ca">nanofab@uwo.ca</a></td>
</tr>
<tr>
<td>Spectrometry</td>
<td>Western Science Centre G49</td>
<td>Particle-Induced X-ray Emission</td>
<td></td>
<td>Determines the elemental make-up of a sample. allows for solid samples to be analyzed without any pre-treatment and can detect many elements below 1ppm</td>
<td>(519) 661-2111 x 83803 Jack Hendriks <a href="mailto:jhendrix@uwo.ca">jhendrix@uwo.ca</a> Lyudmila Goncharova <a href="mailto:lgonchar@uwo.ca">lgonchar@uwo.ca</a> Peter Simpson <a href="mailto:psimpson@uwo.ca">psimpson@uwo.ca</a></td>
</tr>
<tr>
<td>Spectrometry</td>
<td>Western Science Centre G49</td>
<td>Nuclear Reaction Analysis</td>
<td></td>
<td>Method for the quantitative determination and depth profiling of selected light elements and isotopes.</td>
<td>(519) 661-2111 x 83803 Jack Hendriks <a href="mailto:jhendrix@uwo.ca">jhendrix@uwo.ca</a> Lyudmila Goncharova <a href="mailto:lgonchar@uwo.ca">lgonchar@uwo.ca</a> Peter Simpson <a href="mailto:psimpson@uwo.ca">psimpson@uwo.ca</a></td>
</tr>
<tr>
<td>Spectrometry</td>
<td>Western Science Centre G49</td>
<td>Ion Implantation</td>
<td></td>
<td>The capability currently exists to implant samples with up to a 2 inch diameter at substrate temperatures in the range -195°C to 600°C. Wafers of 3 and 4 inch diameter can currently be implanted at room temperature only. Dose uniformity is on the order of 3%. The temperature is monitored by 3 thermocouples imbedded in the nickel block.</td>
<td>(519) 661-2111 x 83803 Jack Hendriks <a href="mailto:jhendrix@uwo.ca">jhendrix@uwo.ca</a> Lyudmila Goncharova <a href="mailto:lgonchar@uwo.ca">lgonchar@uwo.ca</a> Peter Simpson <a href="mailto:psimpson@uwo.ca">psimpson@uwo.ca</a></td>
</tr>
<tr>
<td>Spectrometry</td>
<td>Western Science Centre Room 54 (Laboratory for Stable Isotope Science)</td>
<td>Mass Spectrometry</td>
<td>Thermo Finnigan Delta plus XL</td>
<td>Dual inlet and continuous flow capabilities, micro-volume, interfaced with GasBench, Costech EA, GC/C and PreCon peripherals.</td>
<td>519-661-3881 Fred J Longstaffe <a href="mailto:flongsta@uwo.ca">flongsta@uwo.ca</a></td>
</tr>
<tr>
<td>-----</td>
<td>-------------------</td>
<td>----------------</td>
<td>---------------------------------</td>
<td>------------------------------------------------------------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>Spectrometry</td>
<td>Western Science Centre Room S4 (Laboratory for Stable Isotope Science)</td>
<td>Automated peripherals</td>
<td>GasBench</td>
<td>High precision on-line isotope ratio determination of gas species, waters and carbonates. Combi-Pal autosampler</td>
<td>Pre-Con</td>
</tr>
<tr>
<td>Spectrometry</td>
<td>London Regional Proteomics Centre. MALDI Mass Spectrometry Facility (MSB 392)</td>
<td>Mass Spectrometry</td>
<td>AB Sciex TOF / TOF 5800 system</td>
<td>High speed acquisition and sensitivity for protein detection in complex mixtures. Ideal platform for gel spot analysis and biomarker discovery. Suitable for MALDI mass spectrometry imaging of tissue. High sensitivity MSA and MS/MS data on small molecules as well as peptides and proteins in tissues.</td>
<td></td>
</tr>
<tr>
<td>Spectrometry</td>
<td>London Regional Proteomics Centre. MALDI Mass Spectrometry Facility (MSB 392)</td>
<td>Mass Spectrometry</td>
<td>AB Sciex 4700 Proteomics Discovery System</td>
<td>Based on MALDI tandem time-of-flight mass spectrometer with TOF/TOF optics. Indetification by peptide fingerprinting in MS mode, partial peptide sequencing of selected precursor ions after collision-induced dissociation in the MS/MS mode.</td>
<td>Ms. Kristina Jurcic <a href="mailto:maldi@uwo.ca">maldi@uwo.ca</a>   519-661-2111 x82806</td>
</tr>
<tr>
<td>Spectrometry</td>
<td>London Regional Proteomics Centre (Siebens Drake Research Institute Room G31A)</td>
<td>Mass Spectrometry</td>
<td>Thermo Scientific Orbitrap Elite</td>
<td>Mass Spectrometer with dual pressure linear ion trap and high filed Orbitrap mass analyzer. Especially useful when analyzing samples with high complexity and targeting analytes of low abundance in applications such as proteomics, metabolomics and lipidomics. Requires low sample amounts.</td>
<td>Dr. Gilles Lajoie  SDRI G31C   519-661-3054 <a href="mailto:glajoie@uwo.ca">glajoie@uwo.ca</a>   Paula Pittock 519-661-2111 x 86697 <a href="mailto:ppittock@uwo.ca">ppittock@uwo.ca</a></td>
</tr>
<tr>
<td>Spectrometry</td>
<td>London Regional Proteomics Centre (Siebens Drake Research Institute Room G31A)</td>
<td>Mass Spectrometry</td>
<td>Micromass Q-Tof Ultima Global Mass Spectrometer</td>
<td>Mass Spectrometer can be used in positive and negative ion modes in ESI mode. Equipped with lockspray which allows for introduction of an internal standard without affecting ionization. Used often with a Waters nanoAcquity Ultra Performance LC for LC-MS and LC-MS/MS protein characterization including identification and post translational modification analysis.</td>
<td>Dr. Gilles Lajoie  SDRI G31C   519-661-3054 <a href="mailto:glajoie@uwo.ca">glajoie@uwo.ca</a>   Paula Pittock 519-661-2111 x 86697 <a href="mailto:ppittock@uwo.ca">ppittock@uwo.ca</a></td>
</tr>
<tr>
<td>Spectrometry</td>
<td>London Regional Proteomics Centre (Siebens Drake Research Institute Room G31A)</td>
<td>Mass Spectrometry</td>
<td>Quattro Micro Waters/Micromass, Agilent 1100 HPLC system</td>
<td>Triple quadrupole mass spectrometer equipped with electrospray interface (ESI). Primarily used for the routine MS analysis of small molecules, peptides and proteins. Capable of providing MS, LC-MS, LC-MS/MS, SRM, MRM and precursor ion scanning data in both positive and negative ion modes.</td>
<td>Dr. Gilles Lajoie  SDRI G31C   519-661-3054 <a href="mailto:glajoie@uwo.ca">glajoie@uwo.ca</a>   Paula Pittock 519-661-2111 x 86697 <a href="mailto:ppittock@uwo.ca">ppittock@uwo.ca</a></td>
</tr>
<tr>
<td>Spectrometry</td>
<td>London Regional Proteomics Centre (Siebens Drake Research Institute Room G31A)</td>
<td>Mass Spectrometry</td>
<td>Q-TOF Micro Waters/Micromass</td>
<td>This is a smaller version of the orthogonal acceleration Q-Tof mass spectrometer with resolving power of 5000 and higher sensitivity than triple quadrupole mass spectrometers. Has both ESI and nanoelectrospray interfaces and is coupled to an Agilent HPLC for LC-MS and LC-MS/MS analysis.</td>
<td>Dr. Gilles Lajoie  SDRI G31C   519-661-3054 <a href="mailto:glajoie@uwo.ca">glajoie@uwo.ca</a>   Paula Pittock 519-661-2111 x 86697 <a href="mailto:ppittock@uwo.ca">ppittock@uwo.ca</a></td>
</tr>
<tr>
<td>Spectrometry</td>
<td>London Regional Proteomics Centre (Medical Sciences Building Room 394)</td>
<td>Spectropolarimeter</td>
<td>Jasco J-810</td>
<td>Aids in study of protein conformation and stability by providing analysis of secondary structures using CD. CD measures the changes of folding in protein as a function of temperature as well as protein-ligand and nucleic acid-ligand interactions.</td>
<td>Dr. Gilles Lajoie SDRI G31C 519-661-3054 <a href="mailto:glajoie@uwo.ca">glajoie@uwo.ca</a> Paula Pittcock 519-661-2111 x 86697 <a href="mailto:ppittock@uwo.ca">ppittock@uwo.ca</a></td>
</tr>
<tr>
<td>----------------</td>
<td>---------------------------------</td>
<td>------------------</td>
<td>------------</td>
<td>-------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------</td>
</tr>
<tr>
<td>Spectrometry</td>
<td>London Regional Proteomics Centre (Medical Sciences Building Room 394)</td>
<td>Fluorometer</td>
<td>Fluorolog-3</td>
<td>Photon-counting instrument used in the analysis of conformational changes in proteins through the fluorescence of endogenous tryptophan or fluorometric assays. Sample chamber is equipped with a stirrer and temperature control is available.</td>
<td>Dr. James Choy <a href="mailto:jchoy4@uwo.ca">jchoy4@uwo.ca</a> 519-661-3161 Lee-Ann Briere <a href="mailto:lbriere2@uwo.ca">lbriere2@uwo.ca</a> 519-661-2111 x85297</td>
</tr>
<tr>
<td>Spectrometry</td>
<td>London Regional Proteomics Centre (Medical Sciences Building Room 394)</td>
<td>Fluorescence spectrometer</td>
<td>PicoQuant Fluo Time 200</td>
<td>This system has single-photon timing sensitivity and contains the complete optics and electronics required for recording fluorescence decays by means of Time-Correlated Single Photon Counting (TCSPC). Allows for decay times in the picoseconds range to be resolved. Can distinguish between molecules of interest and background or other species.</td>
<td>Dr. James Choy <a href="mailto:jchoy4@uwo.ca">jchoy4@uwo.ca</a> 519-661-3161 Lee-Ann Briere <a href="mailto:lbriere2@uwo.ca">lbriere2@uwo.ca</a> 519-661-2111 x85297</td>
</tr>
<tr>
<td>Spectrometry</td>
<td>London Regional Proteomics Centre (Medical Sciences Building Room 394)</td>
<td>Dynamic Light Scattering (DLS)</td>
<td>DynaPro</td>
<td>Used to study the sizes of macromolecules in the range of 0.5nm to 1um in hydrodynamic radius and determine if the samples are monodisperse. Used to assess the suitability of protein preparations for crystallization trials.</td>
<td>Dr. James Choy <a href="mailto:jchoy4@uwo.ca">jchoy4@uwo.ca</a> 519-661-3161 Lee-Ann Briere <a href="mailto:lbriere2@uwo.ca">lbriere2@uwo.ca</a> 519-661-2111 x85297</td>
</tr>
<tr>
<td>Spectrometry</td>
<td>London Regional Proteomics Centre (Medical Sciences Building Room 309) Biomolecular NMR Facility</td>
<td>NMR Spectrometer</td>
<td>Varian INOVA 600 MHz</td>
<td>4 complete channels plus deuterium decoupling accessory. XYZ axial gradients, Variable Temperature control, Varian $^{13}$C-enhanced HCN cold probe offering up to 4x $^1$H and 2x $^{13}$C sensitivity. VnmrJ 4.2 D software.</td>
<td>Dr. Gary S. Shaw MSB M306 519-661-4021 <a href="mailto:gshaw1@uwo.ca">gshaw1@uwo.ca</a> Dr. Liliana Santamaria <a href="mailto:lsantam2@uwo.ca">lsantam2@uwo.ca</a></td>
</tr>
<tr>
<td>Spectrometry</td>
<td>London Regional Proteomics Centre (Medical Sciences Building Room 309) Biomolecular NMR Facility</td>
<td>NMR Spectrometer</td>
<td>Varian INOVA 600 MHz</td>
<td>4 complete channels plus deuterium decoupling accessory. XYZ axial gradients, Variable Temperature control, Varian 5-mm $^1$H ($^{13}$C/$^{15}$N) triple resonance XYZ-PFG probe, Varian 8-mm $^1$H($^{13}$C/$^{15}$N) triple resonance Z-PFG probe. VnmrJ 4.2 D software.</td>
<td>Dr. Gary S. Shaw 519-661-4021 <a href="mailto:gshaw1@uwo.ca">gshaw1@uwo.ca</a> Dr. Liliana Santamaria <a href="mailto:lsantam2@uwo.ca">lsantam2@uwo.ca</a></td>
</tr>
<tr>
<td>Spectrometry</td>
<td>Surface Science Western LL31</td>
<td>Dynamic Secondary Ion Mass Spectrometry Cameca IMF-6f SIMS</td>
<td>Provides elemental and isotopic analysis of very small volumes situated on the surface of solid samples. The dynamic SIMS (D-SIMS) mode is characterized by the use of high density, DC primary ion beam currents providing typical sputter rates in the range 0.5-5nm/s. Under such conditions most chemical bonds are broken and only atoms or polyatomic fragments are ejected from the sample surface as neutrals or ions, thus restricting D-SIMS applications to elemental and isotopic depth profiling or mapping. The detection range of this technique extends from matrix element levels down to trace element levels in the ppb range. Provides elemental and isotopic analysis of very small volumes situated on the surface of solid samples. Improved transmission resulting in lower detection limits. Includes numerous improvements on the 3f.</td>
<td>Mr. Gary Good  <a href="mailto:ggood@uwo.ca">ggood@uwo.ca</a>  519-661-2111 Ext. 86742</td>
<td></td>
</tr>
</tbody>
</table>

| Spectrometry | Surface Science Western LL31 | Dynamic Secondary Ion Mass Spectrometry Cameca IMF-3f SIMS | Provides elemental and isotopic analysis of very small volumes situated on the surface of solid samples. The dynamic SIMS (D-SIMS) mode is characterized by the use of high density, DC primary ion beam currents providing typical sputter rates in the range 0.5-5nm/s. Under such conditions most chemical bonds are broken and only atoms or polyatomic fragments are ejected from the sample surface as neutrals or ions, thus restricting D-SIMS applications to elemental and isotopic depth profiling or mapping. The detection range of this technique extends from matrix element levels down to trace element levels in the ppb range. Elemental analysis covering the entire periodic table. Quantitative microanalysis with detection limits of 200-300ppb, which effectively addresses the analytical gap between the electron microprobe and bulk analytical techniques. Elemental depth profiling. Imaging of the elemental distribution with 1um spatial resolution. | Dr. Stamen Dimov  sdimov@uwo.ca  519-661-2111 Ext. 89204 |
| Spectrometry | Surface Science Western LL31 | Time-of-Flight Secondary Ion Mass Spectrometry | ION-TOF GmbH, ION-TOF-SIMS IV | Extreme surface sensitivity with superior chemical selectivity allow for unique identification of chemical structures and exploration of surface chemistry. Equipped with Bi+, Bi3+, Bi3++, Cs+ and C60+ ion sources. Surface analytical technique capable of detecting ions over a large mass range of 1-10,000 atomic mass units. Capable of generating an image of lateral distributions of the secondary ions at spatial resolutions of better than 0.15 microns. Motorized sample stage allows for automated analysis, capable of holding wafers up to 8” in diameter/width and equipped with Heating/cooling capabilities. | Dr. Heng-Yong Nie  hnlie@uwo.ca  519-661-2111 Ext. 86734 |
| Spectrometry | Mass Spectrometry Facility ChB 14 | High Resolution Mass Spectrometry | Thermo Scientific DFS (Double Focusing Sector) Mass Spectrometer | Used for high resolution mass spectrometry and structure confirmation for organic and inorganic species. Mass range of 0-1200 m/z. Sample analysis using Electron impact (EI) or Chemical ionization (CI). Samples can be introduced using solid sample probe, Direct Exposure Probe, Dip-HT probe and Gas Chromatography using an auto sampler. | Doug Hairsine  scidwh@uwo.ca |
| Spectrometry | Mass Spectrometry Facility ChB 14 | Electrospray Time of Flight Mass Spectrometry (ESI MS) | Bruker micrOTOF II | Used for analysis of organometallic samples as well as protein samples with mass range 60-20,000m/z. | Doug Hairsine  scidwh@uwo.ca |
| Spectrometry | Mass Spectrometry Facility ChB 14 | Matrix-Assisted Laser Desorption/Ionization Mass Spectrometry | Bruker Daltonics Reflex IV | MALDI time-of-flight instrument equipped with a linear/reflectron mass analyzer and post-source decay capability. Extended mass range detector provides sensitivity up to 300,000 m/z. | Doug Hairsine  scidwh@uwo.ca |
| Spectrometry | Mass Spectrometry Facility ChB 14 | GC-MS | Schimadzu GCMS-QP2010 | Bench top gas chromatograph/quadrupole mass spectrometer for high precision GC/MS analysis. Ideal for qualitative sample analysis and identification of unknowns or quantitation for trace constituents. Electron impact only instrument with a mass range of 10-1000m/z. Equipped with Shimadzu AOC-20i autoinjector for automated sample injecting. | Doug Hairsine  scidwh@uwo.ca |