# Centre for Advanced Materials Joining (CAMJ)

<http://mme.uwaterloo.ca/~camj/index.php>

## Location

Office: E3 2135A

## Management

Director:

* Dr. Norman Zhou ([nzhou@uwaterloo.ca](mailto:nzhou@uwaterloo.ca); x36095)

Tour operator:

* Dr. Xiaogang Li ([x27li@uwaterloo.ca](mailto:x27li@uwaterloo.ca))

## Users

* Students (Chemical Engineering, Nanotechnology engineering, Physics)
* Visiting Scholars
* Industry Contracts:
  + RIM
  + Microbonds
  + Celestica
  + Government

## Research

* Nanojoining
* Microelectronics
* Solar Energy
* Water Treatment

## Lab Capability

* The leading group on nano-wire application for energy, environment and macroelectronics
* Contains post-application and analysis facilities; a mature research centre in Canada

## Selected Projects

* **Current**
  + Solar energy for water treatment - CWN (Canadian Water Networks - centre of excellence)
  + Flexible organic solar cells – Micropond
* **Past**
  + Solar panel welding - Canadian Solar
  + Fuel cell assembly (for fabrication) - Power Laser

## Equipment

* 35fs 7mJ Laser System
* Near Field Scanning Optical Laser
* Nano-Indenter
* Micro X-Ray Diffraction Machine
* WYKO NT1100 Optical Profiler
* Single Phase Spot Welder
* MFDC Spot Welder
* Unitek 500 Series Spot Welder
* Miyachi Unitek series 300 Spot Welder
* THIN-LINE series 80 Spot Welder
* Micro-plasma Arc Welder
* Automatic Wire Conders
* Manual Wire Bonders
* Miyachi LW-50A Low Power Laser
* NUVONYX ISL-4000L Diode Laser
* Instron 5548 Micro Tester
* Dage 4000 Multi-Purpose Tester
* Olympus BX51M System Metallurgical Microscope
* Fischerscope X-Ray
* Pyris 1 TGA Thermogravimetry Analyzer
* Scientech SM124D Analytical Balance
* Accuton-50 Wafer Cutting Machine
* Model 1010 Low Angle Ion Milling and Polishing System
* Ecomet 3 Variable Speed Grinder-Polisher
* Solar Light Simulator 150 Wattz
* Raman Spectrumscopy
* UV 250/pc FTIR-8400S
* SHIMAPZU

## Supporting Partners

* NSERC
* CFI
* CWN
* FedDev - ARC

## Access Rights

* **Open to university faculty/student (Academic)**
  + Free for students in CAMJ and their collaborative groups
  + $30-70/hr depending on the device
* **Open to public/industry for a fee**
  + Usually perform the testing for industry but for the independent researchers: $60-120/hr depending on the device used
* **Priority:**  
  1) Mechanical Engineering Students  
  2) Other non-engineering faculties  
  3) Other university students  
  4) Industry
* **Process**  
  Contact any researcher in CAMJ whose work is related to the project and they will forward the message to Prof. Xiaogang Li. Details to be discussed.
  + <http://mme.uwaterloo.ca/~camj/equipment/procedures.html>
* **Training**  
  Once trained, fee can be halved