

## 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 Bonders
- 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 Spectromscopy
- 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