<table>
<thead>
<tr>
<th>Faculty Areas of Expertise</th>
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| **Ghassan Chehab**  
Civil Engineering  
advanced characterization of construction materials; accelerated and nondestructive testing of pavements and roadway infrastructure; pavement design, rehabilitation and performance prediction; evaluation of geosynthetics for highway applications; instrumentation and field monitoring |
| **Francesco Costanzo**  
Engineering Science and Mechanics  
theoretical characterization of the mechanical behavior of materials with focus on modeling and computation for dynamic fracture and damage evolution; heterogeneous materials; multiscale modeling |
| **Joseph Cusumano**  
Engineering Science and Mechanics  
mechanics and dynamical systems theory; damage state estimation; data analysis algorithms; experimental verification |
| **Jeff Laman**  
Civil Engineering  
field testing and monitoring of large civil structures, design and behavior of bridge structures, steel structures, fatigue, bridge load models |
| **Dan Linzell**  
Civil Engineering  
SHM in areas related to the behavior of straight, curved, and skewed steel bridges during construction and under service loads; integral abutment bridges during construction and under service loads; ship structural components under static and dynamic loads; building systems and components under blast and impact loads; condition and forensic structural inspections of bridges, buildings and other infrastructure systems |
| **Cliff Lissenden**  
*Engineering Science and Mechanics* | mechanical behavior of materials, damage, fatigue and fracture; composites; wave mechanics; ultrasonic guided waves; monitoring adhesively bonded composite joints; guided waves for damage detection in piping |
| --- | --- |
| **Maria Lopez de Murphy**  
*Civil Engineering* | composite materials for repair and rehabilitation of civil infrastructure; characterization of interfacial crack propagation between fiber reinforced polymers and concrete; fiber reinforced concrete; long term monitoring and assessment of structural bonded repairs in civil infrastructure |
| **Karl Reichard**  
*Applied Research Lab* | complex systems monitoring and automation; R&D of systems for the monitoring, diagnosis, and prediction of health and status in mechanical and electrical systems; improve intelligent autonomous systems for the testing and monitoring of manufacturing and equipment operations; embedded and distributed sensing and control systems for machinery and system health monitoring, acoustic surveillance and detection; active noise and vibration control; electro-optics |
| **Joseph Rose**  
*Engineering Science and Mechanics* | ultrasonic guided waves and associated technologies including defect detection, sensors, phased arrays, data analysis, tomography; application to aircraft, helicopters, pipelines, power plants, material processing, deicing |
| **Andrea Schokker**  
*Civil Engineering* | SHM as related to design and materials related improvements in prestressed concrete, durability of concrete structures, and blast resistant concrete; special interest in recent advances in sensing techniques and innovative sensors |
| **Edward Smith**  
*Aerospace Engineering* | rotorcraft dynamics and aeromechanics; advanced composite materials and structures; active vibration control; health and usage monitoring systems; damage detection methodology for application to drive system (gears, bearings, shafts), rotor system (blades, linkages, flight controls), as well as composite structural components used widely in the airframe |
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<tr>
<th>Name</th>
<th>Department</th>
<th>Research Interests</th>
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<tr>
<td>Bernhard Tittmann</td>
<td>Engineering Science and Mechanics</td>
<td>acoustic microscopy for materials characterization and materials process monitoring and control; physical acoustics characterization for study of superconductivity, rock mechanics, SAW devices, nondestructive evaluation; sensors for process monitoring and control of composites, sensors for health monitoring of pressure vessels; acoustic microscopy of biological cells and tissue</td>
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<tr>
<td>Judith Todd</td>
<td>Engineering Science and Mechanics</td>
<td>integrity of coatings, multiscale wave-material interactions, laser processing of coatings, pressure vessel applications</td>
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<td>Martin Trethewey</td>
<td>Mechanical Engineering</td>
<td>condition based machine health monitoring; development and analysis of machine dynamic systems from experimentally acquired data; experimental technique development; signal processing; experimental modal analysis; structural modeling</td>
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<tr>
<td>Mirna Urquidi-Macdonald</td>
<td>Engineering Science and Mechanics</td>
<td>modeling complex phenomenon; pattern recognition; neural networks; corrosion, pitting, and stress corrosion cracking</td>
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<tr>
<td>Qiming Zhang</td>
<td>Electrical Engineering</td>
<td>actuators and sensors, transducers, dielectrics and charge storage devices; polymer thin film devices; polymer MEMS; RF resonators; electro-optic and photonic devices</td>
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