



# Paul Okrutny, M.Sc., P.Eng.

## Practice Lead, Materials/Mechanical



Paul is a professional engineer who specializes in the assessment of metallurgical and mechanical failures. Paul has presented his findings at arbitrations, mediations and in the court of law. During his tenure at -30- FE, Paul investigated over 800 failures dealing with building mechanical systems including plumbing, HVAC, fuel oil supply and fire protection. Other projects included material defects and material characterization. Paul has been published in international scientific journals and has presented his research and forensic results at provincial, national, and international meetings. He teaches undergraduate courses in materials engineering and volunteers his time to committees that help upgrade engineering codes and regulations.

### Contact

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### Academic Background

Masters of Applied  
Science, McMaster  
University, Hamilton,  
Ontario 2010

Bachelor of Engineering and  
Society, McMaster University,  
2008

### Primary Areas of Consulting

#### Structural Evaluations

- Mechanical failure analysis including:
  - Fire sprinkler systems
  - Plumbing and HVAC
  - Consumer products
  - Industrial equipment
  - Fuel oil tanks and diesel equipment
- Fractography and fracture surface analysis
- Glass/ceramic fractures and failure modes
- Material characterization and identification
- Corrosion characterization and assessment

### Employment Background

#### Diact Inc., Toronto, Ontario

*Practice Lead, Materials/Mechanical*

2019 - Present

- Founder and lead of the materials/mechanical division, overseeing a range of forensic engineering investigations.

#### Mitigateway Inc., Toronto, Ontario

*Founder CEO*

2019 - Present

- Leverage AI to provide insurance claim review and root cause analysis at scale to identify prevention opportunities and impactful inspection techniques



## Professional Associations

Professional Engineers Ontario

Failure Analysis Society (ASM International), Founding Member

ASM International

## Publications

*Practical guidance for private-side drainage systems to reduce basement flood risk: addressing critical information gaps.* 2021, Institute for Catastrophic Loss Reduction and National Research Council (NRC.Canada.ca) Climate-Resilient Buildings Initiative

Physically-based Model for Static Recrystallization in AZ31, Magnesium Technology 2014, pp.149-153

Facile and effective purification of polymers produced by atom transfer radical polymerization via simple catalyst precipitation and microfiltration, Dec. 2005, *Macromolecules* (39), pp. 3-5

Catalyst Solubility and Experimental Determination of Equilibrium Constants for Heterogeneous Atom Transfer Radical Polymerization, March 2007, *Ind. Eng. Chem. Res.*, (46) pp. 2726–2734.

Preparing Tomorrow's Engineer-Communicators: A Review of Models for Effective Communication Instruction. Proceedings of the Canadian Engineering Education Association (CEEA-ACEG) Conference June 8 - 12 Ottawa Ontario · Nov 7, 2019

### **30 Forensic Engineering., Toronto, Ontario**

*Senior Associate – Materials / Product Failure*

2010 - 2019

- Investigated large-scale industrial failures, some with hundreds of millions in losses. Advised executives, adjusters, and legal counsel on technical causes of claims, producing clear technical reports for non-technical audiences. Testified as an expert witness in Ontario courts and arbitrations. Regularly analyzed and reconciled contradictory technical opinions and communicated complex findings effectively.

### **American Society of Materials (ASM)**

*Ontario Chapter President*

2014 - 2019

- Grew membership of the Ontario Chapter of the world's largest association of metals-focused materials scientists and engineers
- Developed a technical speaker series focusing on the most relevant topics
- Developed a succession plan and transitioned the chapter over to new leadership which has proved successful in further growing and developing the organization

### **University of Toronto., Toronto, Ontario**

*Sessional Lecturer*

2024 - Present

- Teach a 4<sup>th</sup> year engineering ethics course to the graduating cohort of Materials Engineering students.

### **McMaster University., Hamilton, Ontario**

*Sessional Lecturer*

2015 - 2014

- Instructor to both large and small classes (20 to 180 people)
- Teach university degree programs relating to Materials Science and Engineering
- Lecture and lab work on the following subjects:
  - Materials Science and Engineering
  - Materials testing & Materials Production
  - Steels in Service
  - Steel failure modes and design criteria
- Technology and Societal Impacts
  - Communication and Management
- Earned top student course ratings among fellow McMaster faculty.

### **Initiative for Automotive Manufacturing Innovation, McMaster University**

*Research Scientist*

2007 - 2008

- Designed novel experiments to understand microstructural behavior of magnesium alloys during room temperature deformation for the automotive industry
- Become proficient with various testing methods such as, tensile testing, Charpy testing, EBSD, ICP elemental composition analysis, and SEM Analysis including EDS.

### **Polymer Research Group, McMaster University**

*Research Scientist*

2005 - 2007

- Discovered a unique effect of catalysts in Atom Transfer Radical Polymerization leading to publication in leading scientific journal
- Work led to the publication of two scientific journals and the discovery of a facile way to purify polymers.

### **Industrial Heat Treating**

*Assembly and Heat Treating*

Feb 2002 - June 2002

- Heat treated parts for austempering, stress relieving, normalizing and annealing including stainless steels, brazing, and gardening for components used in mining, oil and gas, rail, automotive and aerospace industries.

*\*Project history available upon request.*