# Ravi Sundaramoorthy M.Sc., P.Eng.

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(780) 905-6114 rkrave@gmail.com

## PROFILE

- A **Professional Engineer** (P.Eng.) with master's degree in **Materials Engineering** from Queen's University, Kingston
- Over 10 years experience in physical metallurgy, ferrous materials testing and research, and lab management
- Proficient in various experimental techniques for failure analysis of steels and extensive materials characterization experience using metallography, arc spectrometer (OES), scanning electron microscopy (SEM), mechanical testing including various micro and macro hardness testers, ASTM G65 wear testing and Charpy V-Notch impact toughness
- Analyzed and wrote reports on about 100 projects per year on failure, verification, process validations and R&D
- Executed projects and secured funding from National Research Council (NRC-IRAP) for new product development and process optimization valued over $500,000; responsible for proposal planning, budgeting, execution and reporting; new overlays wear performance was comparable to commercially available products at 1/10$^{th}$ of the cost
- Strong analyzing and decision-making skills with the ability to identify solutions to technical problems and communicate effectively
- Excellent communication skills, writing and research abilities demonstrated through presentations at various technical conferences and seminars, papers published in international materials journals
- Strong organizational and interpersonal skills exhibited in managing regular departmental meetings, teaching metallurgy courses, volunteering executive committee member of ASM International – Edmonton Chapter

## WORK EXPERIENCE

**Black Cat Wear Parts Ltd.** Edmonton, AB
**Metallurgy Lab Coordinator** Oct 2010-Aug 2014
**Metallurgy Lab Manager** Aug 2014-May 2019

- Managed and supported materials development, characterization and failure analysis of ground engaging tools
- Specified mechanical testing, chemical analysis and non-destructive testing (NDT) for failure analysis, reviewed the results and formulation of conclusions and writing the report including the recommendations
    - Projects include manufacturing defects, casting defects, embrittlement related to quench and temper processes, hydrogen-induced cracking, fatigue, mechanical damage, wear, application issues and installation

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- ***Welding techniques:*** Plasma-transferred arc welding (PTA welding), Gas metal arc welding (GMAW), Submerged arc welding (SAW); ***Materials and alloys:*** chrome carbide and tungsten carbide (WC) overlays, cemented carbide inserts, carbon and alloy steels, stainless steels, grey and white cast irons
- Responsible for metallurgy lab personnel, maintenance, purchase of lab consumables and procurement of various laboratory instruments from time to time
- Developed and maintained work instructions ensuring implementation of all technical standards and policies, maintain up to date material safety data sheets and troubleshoot technical issues
- Worked on and managed a variety of projects including research on wear, weld overlays and other aspects related to the ground engaging tools and have published in reputed high impact international journals
- Co-ordinated with SR&ED tax credit applications and preparations
- Provided technical consultations to internal and external stakeholders including production, quality, product support and development in failure analysis, problem solving, materials selection, and metallurgical testing of metals and alloys

**Queen's University**, Dept. of Mechanical and Materials Engineering, Kingston, ON
**Research & Teaching Assistant** Jan 2006 – Jun 2009

- Successful completion of fracture analysis testing on Zr-2.5Nb micro pressure tubes as a representation for the CANDU full size pressure tubes for the first time
- Designed a fracture rig for studying delayed hydride cracking in CANDU pressure tubes
- Managed 24 students in materials engineering laboratory and in tutorials for engineering courses
- Queen’s Graduate Award, Research Assistantship and Teaching Assistantship

**Indian Institute of Technology,** Dept. of Metallurgical and Materials Engineering**,** Kharagpur, India
**Junior & Senior Research Fellow** May 2002 – Nov 2005

- Designed a squeeze infiltration casting technique for casting Al/SiC particulate composites
- Selected as **Senior Research Fellow** at Indian Institute of Technology, Kharagpur, India by Council of Scientific and Industrial Research, CSIR-India – 2005

## EDUCATION AND PROFESSIONAL AFFILIATIONS

**M.Sc., Materials Engineering,** Queen's University, Kingston, ON Jun 2009
**MS, Metallurgical and Materials Engineering,** Indian Institute of Technology (IIT) Kharagpur, India Jun 2005
**B.Eng., Metallurgical Engineering**, P.S.G. College of Technology, TN, India Apr 2002
**APEGA** Registered **Professional Engineer (P.Eng.)**, Alberta, Canada May 2014
**ASM International** Edmonton Chapter, Executive committee member 2010-2018