DUNCAN CREE
311 Pringle Court
Saskatoon, Saskatchewan, Canada S7T0S4
Tel: (306)-850-6204
Email: duncan.cree@usask.ca

CURRICULUM VITAE

EDUCATION

Doctor of Philosophy - Mechanical Engineering 2003-2009
Concordia University; Montreal, Quebec, Canada.

Master of Engineering - Mechanical Engineering 2001-2003
Concordia University; Montreal, Quebec, Canada.

Bachelor of Engineering – Mechanical Engineering 1994-1999
Specialization: Aerospace & Vehicle Systems
Concordia University; Montreal, Quebec, Canada.

ACADEMIC POSITIONS

Assistant Professor (tenure track) 2014- present
Department of Mechanical Engineering
University of Saskatchewan, Saskatoon, Saskatchewan, Canada

Adjunct Assistant Professor(without stipend) 2014-2016
Department of Civil Engineering,
Queen's University; Kingston, Ontario, Canada

Assistant Professor (3 year appointment) 2011-2014
Department of Civil Engineering,
Queen's University; Kingston, Ontario, Canada

NSERC Postdoctoral Fellowship Sept. 2009-2011
Queen's University; Kingston, Ontario**,** Canada

Adjunct Assistant Professor Winter 2010, 2011
Department of Civil Engineering,
Queen's University; Kingston, Ontario, Canada

Part-Time Faculty Instructor Winter 2008, 2009
Department of Mechanical Engineering,
Concordia University; Montreal, Quebec, Canada

INDUSTRY EXPERIENCE

Aboriginal Access to Engineering (AAE) Founding Director 2011-2013
Faculty of Engineering and Applied Science, Queen's University, Kingston Ontario, Canada
Responsible for the overall start-up initiatives of the AAE:

- Maintain and continuously update the AAE website with new material
- Recruit /outreach/mentor/support Aboriginal students in Queen's engineering program
- Write grant proposals to secure funding opportunities
- Chair meeting of the Working Group and Circle of Advisors

LLI Analyst for CF-18 Fleet (Junior Engineer) May to Aug. 2002
Bombardier Aerospace (Defense Services); Mirabel, Quebec, Canada (Summer)
Analyzed Life Limited Items (LLI) to ensure continued airworthiness:

- Examined engineering drawings to compare configuration at location of the failure
- Gathered data from full-scale fatigue test and in-service failure databases
- Recommended corrective action based on findings

Airworthiness Engineer (Junior Engineer) July 1999-July 2001
National Research Council Canada; Ottawa, Ontario, Canada
Institute for Aerospace Research – Flight Research Laboratory (FRL)

- Conducted airworthiness reviews of project installations on FRL experimental aircraft to ensure they meet airworthiness standards
- Identified potential safety concerns, prepared briefings to senior management, and a General Compliance Plan
- Aircrafts included the Bell 412 Helicopter, Convair 580 and T-33 (Silver Star)

Junior Engineer May to Aug. 1997-1998
Pratt & Whitney Canada Inc.; Longueuil, Quebec, Canada (2 summers)

- Analyzed depth of electrolytic etch marking on critical rotating turbine parts
- Research indicated inconsistent depth in etching of two similar part numbers
- Proposed adoption of dot peening system
- Presented findings in a 30 page report to department director/manager

PROFESSIONAL LICENSES (Canada)

- **Member**; Assoc. of Prof. Eng. and Geoscientists of Saskatchewan, P. Eng. Since 2014
- **Member**; Professional Engineers of Ontario, P. Eng. Since 2006

LANGUAGE SKILLS

- Bilingual in English and French

ACADEMIC PUBLICATIONS

PEER REVIEWED JOURNAL PUBLICATIONS

M. Nadira, D. Cree. "**Characterization and mechanical property of Trinidad coir fibers**" Journal of Applied Polymer Science, 133(29), 1-9 (2016).

Pliya, P., Cree, D. "**Limestone derived eggshell powder as a replacement in Portland cement mortar**". Construction and Building Materials, 95, 1-9 (2015).

J. Gales, T. Parker, D. Cree, D. and M. Green. "**Fire Performance of sustainable recycled concrete aggregates: mechanical properties at elevated temperatures and current research needs**". Fire Technology, 1-29 (2015).

D. Cree, A. Rutter. "**Sustainable bio-Inspired limestone eggshell powder for potential industrialized applications**". ACS Sustainable Chemistry & Engineering, 3(5), 941-949 (2015).

Duncan Cree, Taras Gamaniouk, Marc Li Loong, Mark F. Green. "**Tensile and lap-splice shear strength properties of CFRP composites at high temperatures**". Journal of Composites for Construction, 19(2), 04014043 (2015).

Cree, D., Green, M., Noumowé, A. "**Residual strength of concrete containing recycled materials after exposure to fire: A review**". Construction and Building Materials, 45, 208-223 (2013).

Cree, D., Chowdhury, E. U., Green, M. F., Bisby, L. A., Bénichou, N. "**Performance in fire of FRP-strengthened and insulated reinforced concrete columns**". Fire Safety Journal, 54, 86-95 (2012).

D. Cree and M. Pugh. "**Dry wear properties of an A356/SiC foam interpenetrating phase composite**". Wear, 272, 88-96 (2011).

D. Cree and M. Pugh, "**Production and characterization of a three-dimensional cellular metal-filled ceramic composite**". Journal of Materials Processing Technology 210 (14) 1905-1917 (2010).

D. Cree and M. Pugh. "**Formation of silicon carbide from pyrolyzed northern wood species**". International Journal of Materials Engineering and Technology, 2 (2) 141-159 (2009).

PEER REVIEWED JOURNAL PUBLICATIONS (Submitted)

D. Cree, P. Pliya, M. Green, A. Noumowé (July 2016). "**Thermal behaviour of unstressed and stressed concrete containing polypropylene fibers at elevated temperature**." (Submitted to *Journal of Structural Fire Engineering*).
M. Li Loong, D. Cree (August 2016). "**Enhancement of mechanical properties of bio-resin epoxy/flax fiber composites using acetic anhydride**." (Submitted to *Journal of Polymers and the Environment*).

PEER REVIEWED JOURNAL PUBLICATIONS (In preparation)

S. Zettl, D. Cree, M. Soleimani, L. Tabil. "**The mechanics of aquaculture feed pellets using 80 % vegetable based proteins**".

R. Budd, D. Cree. "**Elevated temperature durability behavior of natural flax fiber and bio-resins**".

PEER REVIEWED CONFERENCE PROCEEDINGS

Duncan Cree*, Prosper Pliya, Mark Green (2014). "**Behaviour of stress and stress-free concrete with and without polypropylene fibres subjected to high temperature**". Eighth International Conference on Structures in Fire (SiF 2014) Tongji University, Shanghai, China, June 11-14, 2014. **Presenter*.

John Gales*, Thomas Parker, Mark Green, Luke Bisby, Duncan Cree (2014). "**High temperature and fire performance of sustainable concrete with recycled concrete aggregates**". Eighth International Conference on Structures in Fire (SiF 2014) Tongji University, Shanghai, China, June 11-14, 2014. **Presenter*.

N. Mathura*, D. Cree. "**Characterization and utilization of coconut fibers of the Caribbean**". XXII International Materials Research Congress (IMRC 2013), August 11-15, 2013 Cancun, Mexico. **Presenter*.

N. Benichou. D. Cree*, E.U. Chowdhury, M.F. Green and L.A. Bisby. "**Fire testing of FRP strengthened reinforced concrete columns**". Fourth International Conference on Durability & Sustainability of Fibre Reinforced Polymer (FRP) Composites for Construction and Rehabilitation (CDCC 2011), July 20-22, 2011 Quebec City, Canada. **Presenter*.

<u>NON-REFEREED CONTRIBUTIONS</u> (Conferences)

Pliya, D. Cree*, M. Green, A. Noumowé, 2015. Étude expérimentale du comportement à chaud du béton de fibres de polypropylène porté à une température élevée. Colloque (Seminar): Batiments et ouvrages en béton: sécurité incendie. July 8th, 2015, University of Cergy-Pontoise, Cergy-Pontoise, France.**Presenter*.

J. Gales, T. Parker, M. Green*, D. Cree, L. Bisby, 2015 High Temperature Performance of Sustainable Concrete with Recycled Concrete Aggregates. Colloque (Seminar): Batiments et ouvrages en béton: sécurité incendie. July 8th, 2015, University of Cergy-Pontoise, Cergy-Pontoise, France. **Presenter*.

R. Budd*, D. Cree, 2015. The Effects of Fire Retardant Additives on Flax Fiber Bio-Resin Composites at Elevated Temperatures. Combustion Institute Canadian Section (CICS 2015) Spring Technical Meeting, May 11-14, 2015 Saskatoon, Canada. **Presenter*.

D. Cree*, 2015. Effect of Elevated Temperature on Cured Conditions of Carbon Fiber Epoxy Laminates. Combustion Institute Canadian Section (CICS 2015) Spring Technical Meeting, May 11-14, 2015 Saskatoon, Canada. **Presenter*.

D. Cree*, 2015. Combustion of Waste Chicken Eggshells as a Novel Limestone Filler in Polymers. Combustion Institute Canadian Section (CICS 2015) Spring Technical Meeting, May 11-14, 2015 Saskatoon, Canada. **Presenter*.

NON-REFEERED PUBLICATIONS

E. Ike, D. Cree (2016). "**Investigation of adhesive bonding between two dissimilar metals (aluminum and steel)**". Report submitted to Doepker Industries Ltd. for results of an NSERC Engage Project, September 2016. Saskatoon, Saskatchewan.

L. Casey, D. Cree (2016). "**Natural fibers: flexible solutions for sorption-based remediation**". Report submitted to Biolin Research Inc. for results of an NSERC Engage Project, February 2016. Elstow, Saskatchewan, Canada.

D. Cree, (2013). "**Tensile and single lap-splice shear strength experiments on Sika Wrap Hex-230C carbon fiber with epoxy based resin Sika Biresin CR 122**." Report submitted to Sika Canada Inc., December 1, 2013. Pointe-Claire, Quebec, Canada.

A. Cousture, P. Pliya, D. Cree, A.L. Beaucour, A. Noumowe (2011). "**Etat de l'art sur le comportement du béton à hautes temperatures**". An internal report for the University de Cergy Pontoise and Cimbéton, France, 198 pages. (pdf version available).

N. Benichou., D. Cree*, E.U. Chowdhury, M.F. Green and L.A. Bisby. "**Fire testing of FRP strengthened reinforced concrete columns**". NRC-CNRC 2011 Internal Report, No. 54436. A version is also published in the Fourth International Conference on Durability & Sustainability of Fibre Reinforced Polymer (FRP) Composites for Construction and Rehabilitation (CDCC 2011), July 20-22, 2011 Quebec City, Canada, pp. 151-158. *Author.

(thesis) D. Cree. "**Production and characterization of 3-D, cellular, metal-filled ceramics**" PH.D. Thesis, Concordia University, August 2009, 185 pages.