

Nimal Rajapakse, P.Eng., FCAE, FEIC, FCSCE

Vice-President (Research and International) and Professor of Civil Engineering

Degrees: B.Sc. (Moratuwa), M.Eng. (AIT), D.Eng. (AIT)

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[The Department of Civil and Environmental Engineering is proud to welcome the new Vice-President \(Research and International\) as a member of the department.](#)

Teaching Interests

Solid and Structural Mechanics, Numerical Methods, Finite Element Methods, Geomechanics, Engineering Mathematics

Research Interests

Molecular Dynamic Studies of Nanomaterials and Nanostructures, Modified Continuum and Multi-scale Mechanics, Smart Materials and Structures, Soil-Structure Interaction, Poroelasticity and Coupled Field Problems, Advanced Structural Analysis

Honours and Awards

- APEGBC Meritorious Achievement Award – 2004
- Horst Leipholtz Medal of CSCE – 2000
- Rh Award – 1990

Current Graduate Students

Carleton University – Ph.D. (2015-)

Carleton University – MSc (2015-)

Simon Fraser University – PhD (2012-)

(co-supervised), Simon Fraser University – PhD (2013-)

(co-supervised), Simon Fraser University – PhD (2015-)

(co-supervised), University of Campinas, Brazil – PhD (2015-)

(co-supervised), Chulalongkorn University, Thailand – PhD (2012-)

Selected Publications ([Google Scholar full list](#))

- M. A. N. Dewapriya and R. K. N. D. Rajapakse (2014), "Molecular Dynamics Simulations and Continuum Modeling of Temperature and Strain Rate Dependent Fracture Strength of Graphene with Vacancy Defects," J. Appl. Mech., Vol. 81, 081010.
- M.A. Goulet, R.M.H. Khorasany, C. De Torres, M. Lauritzen, E. Kjeang, G.G. Wang and R.K.N.D. Rajapakse (2013), Mechanical properties of catalyst coated membranes for fuel cells, J. Power Sources, Vol. 234, pp. 38-47.
- C.Liu and R.K.N.D. Rajapakse (2013), A size-dependent continuum model for nanoscale circular plates, IEEE Transactions on Nanotechnology, Vol. 12, pp. 13-20.
- Y. Sapsathiarn and R.K.N.D. Rajapakse (2012), A model for large deflections of nanobeams and experimental comparison, IEEE Transactions on Nanotechnology, Vol.11, pp. 247-254.
- C. Liu and R.K.N.D. Rajapakse (2010), Continuum models incorporating surface energy for static and dynamic response of nanoscale beams, IEEE Transactions on Nanotechnology, Vol. 9, pp. 422-431.
- M. Senousy, R.K.N.D. Rajapakse, D. Mumford and M. Gadala (2009), Self-heat generation in piezoelectric stack actuators used in fuel injectors, Smart Materials and Structures, Vol. 18, 045008.
- B. Azadi-Borujeni, R.K.N.D. Rajapakse and D.M. Maijer (2009), Modeling of the cyclic behaviour of shape memory alloys during localized unstable mechanical response, Smart Materials and Structures, Vol. 18, 074005.
- F.X. Li and R.K.N.D. Rajapakse (2008), Nonlinear finite element modeling of polycrystalline ferroelectrics based on constrained domain switching, Computational Materials Science, Vol. 44, pp. 322-329.
- L. Tian and R.K.N.D. Rajapakse (2007), Elastic field of an isotropic matrix with a nanoscale elliptical inhomogeneity, International Journal of Solids and Structures, Vol. 44, pp. 7988-8005.
- R.K.N.D. Rajapakse, C. Yue and T. Senjuntichai (2005), Electroelastic field of a piezoelectric annular finite cylinder, International Journal of Solids and Structures, Vol. 42, pp. 3487-3508.
- X. Zeng and R.K.N.D. Rajapakse (2003), Eshelby tensor for piezoelectric inclusion and application to modeling of domain switching and evolution, Acta Materialia, Vol. 51, pp. 4121-4134.
- X-L. Xu and R.K.N.D. Rajapakse (2001), "On plane cracks in piezoelectric solids", International Journal of Solids and Structures, Vol.38, pp. 7643-7658.
- X.Zeng and R.K.N.D. Rajapakse (1999), "Dynamic axial load transfer from an elastic bar into a poroelastic medium", Journal of Engineering Mechanics, ASCE, Vol. 125, pp. 1048-1055.
- J.Militano and R.K.N.D. Rajapakse (1999), "Transient response of an elastic pile in a multi-layered soil", Geotechnique, Vol.49, pp. 91-109.