



Northeastern

Department of Civil and Environmental Engineering

Advanced Measurement and Data Analysis Methods in Structural Engineering Research

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12pm-1pm
458 Richards Hall

Abstract

Competing and irreconcilable theories exist for explaining how structures support imposed loadings. Our inability to determine which theories are applicable to what design situations leads to unacceptable differences in design code provisions. For example, the shear capacity of the same beam by the US bridge code can differ from that in the US building code by more than a factor of two. The development and use of advanced measurement technologies and data-analysis methods can resolve long-standing uncertainties, and thereby lead to greatly improved design provisions, better use of scarce materials, and improved management strategies for our civil infrastructure. This presentation will also examine the role of academia in shaping the future of structural engineering practice.

Bio

Daniel A. Kuchma holds a B.A.Sc. (University of Toronto 1987), M.A.Sc. (University of Toronto 1989), and Ph.D. (University of Toronto 1996), all in civil engineering. He has been on the faculty of the department of Civil and Environmental Engineering at the University of Illinois since 1997. He has worked on a variety of consulting projects involving offshore structures, hydroelectric dams, towers, buildings and specialty structures. Dr. Kuchma has taught graduate and undergraduate courses on structural dynamics, statics, reinforced concrete, prestressed concrete, and also on experimental methods.

Dr. Kuchma is a member of several professional societies including the American Concrete Institute (ACI) and the Federation International de Beton (fib). He serves on ACI Committee 318E on "Shear and Torsion", ACI Subcommittee 445-A "Strut and Tie", and on ACI Subcommittee 445-F on "Shear Database". He is chair on fib Working Party 4.4.4 on "Benchmark Tests and Validation Procedures". Dr. Kuchma is the recipient of a National Science Foundation CAREER Award on "Tools and Research to Advance the Use of Strut-and-Tie Models in Education and Design". He is also a National Center for Supercomputing Applications Faculty Fellow and University of Illinois Collins Scholar. He has also been included on the list of outstanding instructors at the University of Illinois.



Dan Kuchma, PhD

Department of Civil and Environmental Engineering

TUFTS UNIVERSITY



Education

- PhD, Civil Engineering, *UNIVERSITY OF TORONTO*
- MS, Civil Engineering, *UNIVERSITY OF TORONTO*
- BS, Civil Engineering, *UNIVERSITY OF TORONTO*

Research Interests

- Design and behavior of reinforced and prestressed concrete
- Investigating behaviors of different design methods
- Advanced instrumentation methods and numerical methods.

Selected Service and Awards

- Educator of the Year Award- Precast/Prestressed Concrete Institute (2013)
- Collins Award for Innovative Teaching (UIUC 2008)
- Fellow, American Concrete Institute
- NSF Career award (2001)