



**HRVATSKO DRUŠTVO ZA MEHANIKU
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Zagreb, 6. ožujka 2009.

P o z i v

Pozivamo Vas na predavanje

***“The Method of Particular Solutions for
Solving Thin Plate Vibration Problem”***

koje će održati

Profesor C. S. Chen

Department of Mathematics

University of Southern Mississippi, USA

u četvrtak 19. ožujka 2009. u 18,00 sati,

na Fakultetu strojarstva i brodogradnje, Zagreb, Ivana Lučića 5, predavaonica F.

Više o predavanju može se naći na web stranici: <http://www.csm.hr>.

PREDSJEDNIK DRUŠTVA

Prof. dr. sc. Jurica Sorić

The Method of Particular Solutions for Solving Thin Plate Vibration Problem

C.S. Chen, Goungming Yao
Department of Mathematics
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Hattiesburg, MS 39406, USA

In this presentation, we focus on the derivation of closed form particular solution for Berger equation with large deformation in the context of radial basis functions. The Berger equation is given as follows:

$$(\Delta^2 - \lambda^2)u = f(x, y)$$

where $\Delta = \partial^2 / \partial x^2 + \partial^2 / \partial y^2$ and λ is a constant. Radial basis functions have been used to approximate $f(x, y)$. An approximate particular solution can be obtained using elementary algebra. Berger equation is widely used in the study of the plate bending in engineering. Two numerical examples are given to demonstrate the effectiveness of the method.

Curriculum Vitae of C.S. Chen

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Home page: <http://www.math.usm.edu/cschen>

EDUCATION:

Ph.D., Applied Mathematics, University of Louisiana at Lafayette, 1988
M.S., Mathematics, University of Southern Mississippi, 1982
B.S., Mathematics, National Cheng-Kung University, Taiwan 1979

EMPLOYMENT HISTORY:

Professor and Department Chair, University of Southern Mississippi, 2005 - Present
Professor, University of Nevada, Las Vegas, 2000 - 2005.
Visiting Scholar, University of Nuremberg-Erlangen (Germany), Spring 2001.
Associate Professor, University of Nevada, Las Vegas, 1994 – 2000.
Visiting Scholar, Wessex Institute of Technology, United Kingdom, 1996-1997.
Assistant Professor, University of Nevada, Las Vegas, 1988 - 1994.

SPECIALIZATION:

Main field: numerical solution of partial differential equations
Other fields: Radial basis functions, boundary element methods
Current research interest: Meshless methods

PUBLICATIONS:

Number of papers in refereed journals:	60
Number of papers in refereed conference proceedings:	39
Number of co-authored books:	1
Number of edited book:	2
Number of edited special issue of journal:	4
Number of book chapters:	4

SERVICE TO PROFESSION

1. Member of Editorial Board of *International Journal of Computational Methods*, (2008 – present)
2. Member of Editorial Board of *Journal of Advances in Applied Mathematics and Mechanics* (2009-)
3. Editor-in-Chief of the *Journal of Computers, Materials, and Continua*. (2004-2008)
4. Associate Editor of the *Journal of Engineering Analysis with Boundary Elements* (2000-2004)
5. Member of Editorial Board of the *Journal of Computer Modeling in Engineering & Sciences*. (2004-2008)
6. Member of Editorial Board of the *Journal of Mathematics and Applications* (2000 – present)

7. Associate Editor of *Advances in Boundary Elements Series*, WIT Press – a book series in Engineering and Mathematics.
8. Co-editor of *Boundary Element Technology XIII* – a conference proceeding.
9. Guest editor of special issue “Radial Basis Functions and Dual Reciprocity Method” for *the Journal of Engineering Analysis with Boundary Elements*, Vol. 24, Nos. 7-8, July/September, 2000, ISSN 0955-7997, Elsevier
10. Co-guest editor (with G.R. Liu) for a special issue on meshless methods for the *Journal of Engineering Analysis with Boundary Elements (Vol. I and II)*, to appear in 2003
11. Co-guest editor (with Professors D. L. Young, A. H. –D. Cheng, H. -K. Hong, J. T. Chen) for a special issue on meshless methods for *Journal of the Chinese Institute for Engineers*.
12. Co-guest editor (with Carlos Alves and Vitor Leitao in Portugal) for the special issue on meshless method for the *Journal of Computer Modeling in Engineering & Science*.
13. Co-Chairman of *13th International Conference on Boundary Element Technology*, University of Nevada, Las Vegas, June 8-10, 1999.
14. Scientific Committee of the *International Conference on Computational Engineering Science '2000 (ICES '2K)*, UCLA, August 21-25, 2000.
15. Member of International Scientific Advisory Committee for the 22nd International Conference on Boundary Element Methods, Cambridge University, Cambridge, England, from 4-6 September, 2000.
16. Member of International Scientific Advisory Committee for the Sixth International Conference on Advanced Computational Methods in Heat Transfer, Madrid, Spain from June 26-28, 2000.
17. Member of International Scientific Advisory Committee for the BETEQ Conference to be held at Rugar University, New Jersey, July 16-18, 2001.
18. Member of International Scientific Advisory Committee for the 23rd International Conference on Boundary Element Methods, Lemnos, Greece, May 7-9, 2001.
19. Scientific Committee of the *International Conference on Computational Engineering Science '2001 (ICES' 01)*, Puerto Vallarta, Mexico, August 19-25, 2001.
20. Member of International Scientific Advisory Committee for the Seventh International Conference on Advanced Computational Methods in Heat Transfer, Halkidiki, Greece, 22-24, April, 2002.
21. Member of International Scientific Advisory Committee for the 24th International Conference on Boundary Element Methods, Sintra, Portugal, 17-19, June, 2002.
22. Member of International Scientific Committee of the International Conference on Computational Engineering Science '2002 (ICES '02) and the organizer of a special session in boundary element methods in this conference, Reno, July 31-August 2, 2002.
23. Co-Chair the International Workshop on Meshless methods 2003, Lisbon, Portugal, July 21-23, 2003.
24. Member of International Scientific Committee of the International Conference on Computational Engineering Science '2003 (ICES '03) and the organizer of a special sessions on “boundary element methods”, and “meshless methods”, Corfu, Greece, July 25-29, 2003.
25. Member of International Scientific Advisory Committee for the 25th World on Boundary Element Methods, Split, Croatia, September 8-10, 2003.
26. Member of International Scientific Committee of the International Conference on Computational Engineering Science '2004 (ICES '04) and the organizer of a special sessions on “meshless methods”, Madeira, Portugal, July 26-29, 2004.
27. Member of International Scientific Advisory Committee for the 26th International Conference on Boundary Element Methods, Bologna, Italy, 19-21, April, 2004.
28. Member of International Scientific Advisory Committee for the 27th International Conference on Boundary Element Methods, Orlando, Florida, 15-17 March, 2005.
29. Member of organizing committee, ICCES Symposium on Meshless Methods, June 8-10, 2005, Bratislava, Slovakia.
30. Member of International Scientific Advisory Committee, Symposium on Physics of Fluids, June 9-12, 2005, Huangshan, China.

31. Member of International Scientific Advisory Committee, Ecommas Thematic Conference on Meshless Methods, July 11-14, 2005, Lisbon, Portugal.
32. External member of Ph.D. thesis examination committee and second promoter (equivalent to second advisor) of the Ph.D. candidate Kaichun Wang for Eindhoven University of Technology in the Netherlands. The title of his thesis is "BEM simulation for glass partitions". Dr. Chen was invited to attend Wang's Ph.D. oral defense in Netherlands on January 21, 2002.
33. External committee member of Ph.D. thesis examination committee for the candidate Chou Xu at Hong Kong City University. The title of the thesis is "Triphasic mixture modeling and meshless numerical computations". Dr. Chen was invited to attend his Ph.D. oral defense in Hong Kong on December 23, 2002.
34. External Ph.D. Thesis Examination Committee for Nova Gorica Polytechnic in Slovenia (2005).
35. External Ph.D. Thesis Examination Committee for University of Cyprus (2005).
36. External Ph.D. Thesis Examination Committee for City University of Hong Kong (2005).
37. External Master Thesis reviewer for National University of Singapore (2005).
38. External Master Thesis Examination Committee for University of Nova Gorica in Slovenia (2007).
39. Member of International Scientific Advisory Committee, International Conference on Computational & Experimental Engineering and Sciences, Dec. 1-6, 2005, Chennai, India.
40. Member of International Scientific Advisory Committee, 28th International Conference on Boundary Elements and other Mesh Reduction Methods, 10 - 12 May, 2006, Skiathos, Greece.
41. Member of scientific committee, ICCES Symposium on Meshless Methods, 14-16 June 2006: Dubrovnik, Croatia.
42. Co-Chairman the International Workshop on the Method of Fundamental Solutions, June 11-13, 2007, Cyprus.
43. Member of International Scientific Advisory Committee, International Conference on Computational & Experimental Engineering and Sciences, Jan. 3-8, 2007, Miami, USA.
44. Member of International Scientific Advisory Committee, Ecommas Thematic Conference on Meshless Methods, July 9-11, 2007, Porto, Portugal.
45. Member of International Organization Committee, International Conference on Computational Methods, April 4-6, 2007, Hiroshima, Japan.
46. Member of scientific committee, ICCES Symposium on Meshless Methods, June 15-17, 2007, Patras, Greece.
47. Member of International Scientific Advisory Committee, 29th International Conference on Boundary Elements and other Mesh Reduction Methods, June 4-6, 2007, The New Forrest, U.K.
48. Member of International Scientific Advisory Committee and Co-Chair of Meshless Symposium, International Conference on Computational & Experimental Engineering and Sciences, March 16-21, 2008, Hawaii, USA.
49. Member of International Scientific Advisory Committee, International Conference on Computational Methods in Applied Sciences (CMAS 2009), June 30-July 3, 2009, Bratislava, Slovakia.
50. External Ph.D. Thesis Committee member for University of Nova Gorica in Slovenia (2009).

GRANT AWARDS:

1. Compactly Supported Radial Basis Function for Boundary Element Methods, **NATO Collaborative Research Grant**, Co-PI (with C.A. Brebbia), 1997-1998, \$5,700, Co-PI.
2. On the Valuation of Derivative Securities, **UNLV SITE Grant** (with M. Maroccozi and S. Choi), 1999-2000, \$5,000, Co-PI.
3. The Method of Fundamental Solutions for Inhomogeneous Problems, **NATO Collaborative Linkage Grant** (with B. Sarler, C.J.S. Alves), 2001-2002, \$5,400, P.I.
4. Meshless Methods for Computational Modeling of Heat Transfer and Fluid Flow, **USA-Slovenia Cooperation Grant** (with B. Sarler, Jichun Li and D.W. Pepper), 2001-2003, \$7,200, PI.

5. Mesh-Free Method for Modeling Ground Water Contamination Transport, **UNLV New Investigator Award** (with Jichun Li), 2001-2003, \$8,200, Co-PI.
6. Meshless Methods Using Radial Basis Functions for Heat Transfer and Fluid Flow, **National Research Council**, COBASE Grant, 2004-2005, \$5,750, PI.
7. Radial basis functions based meshless methods with applications to groundwater contaminant modeling, (with Jichun Li), **National Science Foundation (NSF/INT)**, 2003-2005, \$17,800, Co-PI.
8. Modeling of radionuclide migration through geosphere using meshless methods, (with Yitung Chen) **Nevada Epscor Seed Grant**, \$14,900, 2004-2005, PI.
9. Boundary Meshless methods for solving large scale problems, **NATO Collaborative Linkage Grant**, \$12,430, 2003-2005, PI
10. Meshless methods using radial basis functions for solving bending problem of a thin plate, (with A.S. Muleshkov), **Nevada NASA Epscop**, \$8900, 2005, PI.
11. C.S. Chen, Rex Gandy, Justin McKenzie, Pearson Custom Publishing Equipment Grant, \$60,000, PI.
12. Modeling Terrorist Attack on Environmental Pollution (with Ahmed Naji, Sergiy Reutskiy), **NATO Collaborative Linkage Grant**, \$8,114, 2007-2008, PI.
13. Barry Piazza, C.S. Chen, Rex Gandy, H.Y. Tian, Janice Flechter, Course Redesign: Emporium Model for Intermediate Algebra, **IHL - National Center for Academic Transformation**, \$100,000 (Co-PI).