Resume/CV

Vinod Arya, Ph. D.
Department of Mathematics
University of North Texas at Dallas
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Professional Experience:

UNT Dallas (2010 – to-date)

- Chaired and Provided Leadership to University Information Technology Committee at University of North Texas at Dallas. (2010 – 2011)
- Worked as the Director of TI (Texas Instrument) Scholars Program funded by a gift grant of 1.1 million dollars. (2010 – 2011)
- Presented a lecture to the University Community on Flipping-the-Class Model.
- Chaired/Participated in numerous departmental/university committees. (2010 – to date)

Fayetteville State University (2006 to 2010)

- Developed a B.S. (Applied Mathematics Concentration) Program.
- Developed an online B.S. Degree Completion Program
- Developed Dual Degree Enrollment Program in Mathematics.
- Developing a Post Graduate Certificate Program in Applied Statistics. (Left to join UNTD).
- Developed International B.S. Program in Computer Science with ECUST University, China (B.S. Programs in Applied Mathematics and Computer Science with two other Chinese universities in Progress.
- Encouraged faculty to submit grant proposals. Two grant proposals submitted by the faculty were funded by NSF and DOE
- Submitted two proposals as PI to NSF.
- Faculty participated in a large number of conferences/workshops. Presented and published research papers in refereed journals and proceedings
- Encouraged successfully faculty involvement in Community Services.
- Developing a B.S. Program in Actuarial Science

Honors/Awards/Recognitions

- Guest of Honor at the National Conference of Recent Innovations in Technology, Kottayam, India, March 2009.
- Letter of recognition from the Director, NASA-Glenn Research Center, Cleveland, Ohio for meritorious achievements. June 2003.
- Recipient of team award for Commercialization of NASA Developed Probabilistic Tools, Structures and Acoustics Division, NASA-Glenn Research Center, Cleveland, Ohio, May 2003.

- Certificate of Recognition from the Director, NASA-Lewis Research Center, Cleveland, Ohio for contributions and superior performance in achieving NASA's Advanced Earth-to-Orbit Propulsion Program, 1993.
- Letter of Recognition in achieving NASA's HSR/EPM (High Speed Research/ Enabling Propulsion Materials Program), 1996.
- Listed in Who is Who in Science and Engineering, USA, 1997.
- Listed as Man of Achievement by International Biographical Centre, England, 1998.
- Listed in Who is Who in Science and Engineering, 1998.
- Listed in Outstanding Scientist of the 20th Century by the International Biographical Centre, England, 1998.
- Member of International Scientific Committee of International Conference on Computational Engineering Sciences, 1997.
- Distinguished Service Medal Award from ICES Committee, 1995.
- Member of International Scientific Committee of International Conference on Computational Engineering Sciences, 1995.
- Presented an invited paper and chaired a session at the 32nd Annual Technical Meeting of Society of Engineering Sciences, New Orleans, 1995.
- Member of International Scientific Committee of International Conference on Computational Engineering Sciences, 1992.
- Recipient of the prestigious NRC-NASA Research Associateship (Senior) award, 1986.
- Listed in Reference Asia, 1984.
- Commended as MAN OF ACHIEVEMENT by International Biographical Center, Cambridge, England in 1980 and 1983 for distinguished academic achievements.
- Listed in International Book of Honor, USA in 1982 and 1983 for academic merits.
- Presented a research paper at the 15th International Congress of Theoretical and Applied Mechanics, Toronto,1980. Got an award of $740.00 from the Congress Committee.
- Recipient of a prize and Certificate of Merit for securing Second Position in the University in Master's examination.

Employment:

• Professor and (Chair (until 9/1/11))), Department of Mathematics and Information Sciences at University of North Texas at Dallas, Texas.	• July 1, 2010 - Present
• Professor and Chair, Department of Mathematics and Computer Science, Fayetteville State University, North Carolina.	• August 2006 – June 2010
• Professor and Chair, Department of Mathematics and Natural Sciences, Virginia Union University Richmond, VA 23220	• August 2004 – May 2006
• Professor/Associate Professor (Visiting, Teaching and Research), Department of Mathematical Sciences, The	• Dec. 1994 – Jan. 2006

University of Akron/NASA-Lewis Research Center, Cleveland[1].	
• Senior Resident Associate, Department of Mechanical Engineering, University of Toledo/NASA-Lewis Research Center, Cleveland.	• Dec. 1988 – Nov. 1994
• NASA/NRC Senior Research Associate, NASA-Lewis Research Center, Cleveland	• Sept. 1986 - Nov. 1988
• Visiting Scientist, Nuclear Research Center, Karlsruhe, Germany	• June 1985 - Aug 1986
• Assistant Professor, Indian Institute of Technology (I.I.T.)[2]., Roorkee, India.	• Jan 1976 - May 1985
• Visiting Scientist, Nuclear Research Center, Karlsruhe, Germany. (On leave from I.I.T., Roorkee, India.)	• June 1980 – Nov. 1981
• Assistant Professor, Regional College of Education, Bhopal, India	• Dec. 1975 - Jan. 1976
• Scientists' Pool Officer, Indian Institute of Technology Roorkee, India.	• March 1975 - Nov. 1975
• Research Fellow, Indian Institute of Technology Roorkee, India.	• Aug. 1970 - Feb. 1975

Research Projects and Funding

- Worked as the Director of a 1.1 million dollars grant from TI (Texas Instruments) Foundation to University of North Texas at Dallas, Texas.
- Numerical Analysis and Modeling for Advanced Structural and Life Analyses of Aerospace Components. Period: June 1, 2003 – January 31, 2007. Awarding Agency: NASA Glenn Research Center, Cleveland. Amount: $ 420000.00. Co-Principal Investigator: Dr. Ali Hajjafar, The University of Akron.
- Numerical Analysis and Modeling for Advanced Structural and Life Analyses of Aerospace Components. Period: October 1, 2006 – September 30, 2008. Awarding Agency: NASA Glenn Research Center, Cleveland. Amount: $ 25,000.00.
- Computer Grant. Period: September 2003. Awarding Agency: The University of Akron, Akron. Amount: $ 3000.00. Co-Principal Investigator: Dr. Ali Hajjafar, The University of Akron.
- Numerical Analysis and Modeling for Advanced Structural and Life Analyses of Aerospace Components. Period: August 19, 2003 – January 31, 2006. Awarding Agency: NASA Glenn Research Center, Cleveland. Amount: $ 57000.00.. Co-Principal Investigator: Dr. Ali Hajjafar, The University of Akron.
- Advanced Structural, Impact and Life Analyses of Aerospace Components. Period: March 1, 2002 – February 28, 2004. Awarding Agency: NASA Glenn Research Center, Cleveland. Amount: $ 139102.00. Co-Principal Investigator: Dr. Ali Hajjafar, The University of Akron.

[1] Aug. 1994 – Dec. 1994: Part Time and
Dec. 1994 – Jan. 2006: Full Time
[2] Indian Institute of Technology (formerly University of Roorkee)

- Advanced Structural, Impact and Life Analyses of Aerospace Components. Period: March 1, 2002 – February 28, 2003. Awarding Agency: NASA Glenn Research Center, Cleveland. Amount: $35000.00. Co-Principal Investigator: Dr. Ali Hajjafar, The University of Akron.
- Advanced Structural, Impact and Life Analyses of Aerospace Components. Period: March 1, 2002 – February 28, 2003. Awarding Agency: NASA Glenn Research Center, Cleveland. Amount: $ 25000.00. Co-Principal Investigator: Dr. Ali Hajjafar, The University of Akron.
- Advanced Structural, Impact and Life Analyses of Aerospace Components. Period: January 23, 2001-Janaury 22, 2002. Awarding Agency: NASA Glenn Research Center, Cleveland. Amount: $133462.00 Co-Principal Investigator: Dr. Ali Hajjafar, The University of Akron.
- Advanced Structural, Impact and Life Analyses of Aerospace Components. Period: May 16, 2001 – February 25, 2002. Awarding Agency: NASA Glenn Research Center, Cleveland. Amount: $10000.00. Co-Principal Investigator: Dr. Ali Hajjafar, The University of Akron.
- Advanced Structural, Impact and Life Analyses of Aerospace Components. Period: January 23, 2000 – January 22, 2001. Awarding Agency: NASA Glenn Research Center, Cleveland. Amount: $ 127855.00. Co-Principal Investigator: Dr. Ali Hajjafar, The University of Akron.
- Advanced Structural, Impact and Life Analyses of Aerospace Components. Period: September 8, 2000 – January 22, 2001. Awarding Agency: NASA Glenn Research Center, Cleveland. Amount: $4000.00.Co-Principal Investigator: Dr. Ali Hajjafar, The University of Akron.
- Advanced Finite Element Analyses and Life Prediction Methodology for Aerospace Components. Period: January 23, 1997 – January 22, 2000. Awarding Agency: NASA Lewis Research Center, Cleveland. Amount: $135030.00 (January 23, 1997-January 22, 1998); $117425.00 (January 23, 1998-Janaury 22, 1999); $123420.00 (January 23, 1999-January 22, 2000). Co-Principal Investigator: Prof. D. C. Buchthal, The University of Akron.
- Advanced Finite Element Analyses and Life Prediction Methodology for Aerospace Components. Period: June 1999 - August 1999. Awarding Agency: NASA Lewis Research Center, Cleveland. Amount: $ 2700.00. Co-Principal Investigator: Prof. D. C. Buchthal, The University of Akron.
- Development of Life Prediction Methodology and Efficient Finite Element Analysis Techniques for Application to Aerospace Components. Period: December 1, 1994 - January 22, 1997. Awarding Agency: NASA Lewis Research Center, Cleveland. Amount: $ 192917.00. Co-Principal Investigator: Prof. D. C. Buchthal, The University of Akron.
- Development and Application of Viscoplastic Models in Finite Element Analyses of Structural Components - The University of Toledo/NASA-Lewis Research Center, Cleveland, Ohio. (1988-1994). (Key Researcher-Vinod Arya, PI-Prof. T.G. Keith).
- Development and Application of Viscoplastic Models in Finite Element Analyses of Structural Components - NRC/NASA-Lewis Research Center, Cleveland, Ohio. (1986-1988). (Key Researcher: Vinod Arya, Grant Monitor: Dr. G.R. Halford).

- Creep Deformation of Structural Components - University Grants Commission, India. Effect of Creep on Stress Distribution and Rupture of Structural Parts. Council of Science and Technology, India.
- Stress Analysis for Rational Design of Machine and Structural Components Operating Under Creep Conditions - Council of Scientific and Industrial Research, India.
- Creep Analysis of Structural Parts Used in Nuclear Technology - Department of Atomic Energy, India.

(Period of the last three grants: 1976-85).

Books Reviewed

1. Computational Methods in the Mechanics of Fracture. Atluri, S.N. (ed.). Elsevier Science Publishers, 1986.
2. The Bending & Stretching of Plates. Mansfield, E.H. Cambridge University Press, 2nd Edition. 1989.
3. Mechanics of Elastic-Plastic Fracture. Parton, V.G. and Morozov, E.M. Hemisphere Publishing Corporation. 1989.
4. Computational Techniques and Applications. Hograth, W.L. and Noye, B.J. (eds.). Hemisphere Publishing Corporation.. 1990.
5. Creep in Structures. Zyckowski, M. (ed.). Springer-Verlag. 1990.
6. Non-Linear Fracture (Recent Advances). Knauss, W.G. and Rosakis. Kluwer Academic Publishers, 1990.
7. Plastic Limit Analysis of Plates, Shells and Disks. Save, M.A., Massonet, C.S., and de Saxce, G. Elsevier, 1997.
8. Vibrations of Elasto Plastic Bodies. Palmov, B. Springer-Verlag, 1998.

Editing

- International Journal - Computational Modeling and Simulation in Engineering (CMSE), (Publisher - Sage Science Publishers, California, USA). (in the past).
- Proceedings of Workshop on Continuum Mechanics, Roorkee, India. (1986).

Reviewer

- MATHEMATICAL REVIEWS,
- APPLIED MECHANICS REVIEWS, and
- ZENTRALBLATT FUR MATHEMATIK.
- Research Proposals for NASA Glenn Research Center.
- Hundreds of research papers in Applied Mathematics/Applied Mechanics for reputed research journals.

Publications

Research: 81. (Journals: 39; Reports: 42)
Books/Manuals: Three.

1. FLAPS (Fatigue Life Analysis Programs) – Computer Programs to Predict Cyclic Life Using the Total Strain Version of StrainRange Partitioning and Other Life Prediction Methods. Users' Manual and Example Problems. Version 2.0, 2007.
2. FLAPS- Fatigue Life Analysis Software Manual (Written for NASA-Glenn Research Center), 2003.
3. Introduction to Matrix Algebra (1976-77). (Written Under Curriculum Development Program, Govt. of India, unavailable).

Ph. D. Dissertations

- Supervised*
    1. Stress Analysis in Theory of Creep – K. K. Debnath – 1981, I.I.T., Roorkee, India.
    2. Creep Deformation and Stress Analyses in Some Structural Components - P. S. Kulkarni – 1986, I.I.T., Roorkee, India.

    *Co-supervisor: Prof. N. S. Bhatnagar
- Examined

    Automatic Mesh Generation, Error-Estimation and Adaptivity in Finite-Element Analysis of Metal-Forming Processes. Davinder Singh. I.I.T., Delhi, India, 1998.

M.S. Dissertation

- Supervised

    Probabilistic Finite Element Modeling of Aerospace Engine Components Incorporating Time-Dependent Inelastic Properties for Ceramic Matrix Composite (CMC) Materials. *Ian Miller*, University of Akron, Akron, Ohio, May 2006.
- Presided and Examined the M.S. Thesis

    Finite element modeling of flexible structures with bonded smart sensors and actuators - Vikram M. Dhruva, University of Akron, USA, 2000.

Organization of International Conferences

- *Organizer* of International Symposium on 'INELASTIC DEFORMATION, DAMAGE AND LIFE ANALYSIS 08', Honolulu, HI, 2008.
- *Organizer* of International Symposium on 'INELASTIC DEFORMATION, DAMAGE AND LIFE ANALYSIS 05', Chennai, India, 2005.
- *Organizer* of International Symposium on 'INELASTIC DEFORMATION, DAMAGE AND LIFE ANALYSIS 03', Corfu, Greece, 2003.
- *Organizer* of International Symposium on 'INELASTIC DEFORMATION, DAMAGE AND LIFE ANALYSIS '2K', Los Angeles, 2000.
- Invited to organize sessions and also to deliver a Plenary Lecture at PLASTICITY – 99, Mexico, 1999.
- *Organizer* of International Symposium on 'INELASTIC DEFORMATION, DAMAGE AND LIFE ANALYSIS '98', ATLANTA, 1998.
- *Organizer* of International Symposium on 'INELASTIC DEFORMATION, DAMAGE AND LIFE ANALYSIS '95', COSTA RICA, 1997.

- *Organizer* of an International Symposium on 'INELASTIC DEFORMATION, DAMAGE AND LIFE ANALYSIS', Hawaii, 1995.
- *Organizer* of an International Symposium on 'VISCOPLASTICITY - THEORY AND APPLICATIONS', Hong Kong, 1992.

Sessions Chaired at International Conferences

- Worked as Mentor for the joint MAA-AMS meeting, San Diego, January 2018.
- Chaired a Session at International Conference on Plasticity – Plasticity - 12, San Jose, Puerto Rico, January 2012.
- Chaired a Session at the International Conference on Plasticity, Plasticity-09, St. Thomas, US Virgin Islands, 2009.
- Chaired two Sessions at 2nd Joint International Computational Engineering (KMCM-08) Conference, Vancouver, Canada, 2008.
- Chair a session at the International Conference on Computational Engineering and Sciences ICES ’08, Honolulu, Hi, 2008.
- Chair a session at the International Conference INCCOM-6, Kanpur, India, Dec. 2007.
- Chaired a session at the International Conference on Computational Engineering and Sciences ICES ’05, Chennai, India, Dec. 2005.
- Chaired a session at the International Conference on Recent Advances in Composite Mechanics- 2004, Benares, India.
- Chaired a session at the International Symposium-PLASTICITY ’02, Aruba, 2002.
- Chaired a session at the International Symposium on ‘INELASTIC DEFORMATION, DAMAGE AND LIFE ANALYSIS ‘2K’, Los Angeles, 2000.
- Chaired a session at the International Conference on Computational Engineering Sciences (ICES ’98), Atlanta, 1998.
- Chaired a session at the Engineering Mathematics and Applications Conference, EMAC ’98 Adelaide, Australia, 1998.
- Chaired a session at the International Conference on Computational Engineering Sciences (ICES ’97), Costa Rica, 1997.
- Chaired a session at the 32nd Annual Meeting of the Society for Engineering Sciences, New Orleans, USA, 1995.
- Chaired a session and presented a paper at International Conference on Computational Engineering Sciences (ICES '95), Hawaii, 1995.
- Chaired a session and *Member of Panel Discussion Team* at the International Seminar on Inelastic analysis, Fracture and Life Prediction, Paris, France, August 1993.
- Chaired a session at the International Symposium-PLASTICITY ’93, Baltimore, MD, 1993.
- Chaired a session and Presented a paper at International Conference on Computational Engineering Sciences (ICES '92), Hong Kong, 1992.
- Chaired a session at the 22nd Midwestern Mechanics Conference, Rolla, MO, USA, Oct. 1991.
- Chaired a session at the International Symposium - PLASTICITY- 91, Paris, France, 1991.

- Invited to Chair a session at FEMCAD-89, Paris, France, 1989.
- Chaired a session at the International Symposium - PLASTICITY-89, Tsu, Japan, 1989.
- Invited to Chair a session and present a paper at the PVP-ASME Conference, Orlando, USA, 1982.

Invited and Key-Note Lectures

- International Conference on Plasticity, Plasticity-12, San Jose, Puerto Rico, January 2012.
- Conference Lecture at National Conference on Recent Innovations in Technology, Kottayam, India, 2009.
- 2nd Joint International Conference on Computational Engineering (KMCM-08), Vancouver, Canada, 2008.
- International Conference on Computational Engineering and Sciences '08, Honolulu, HI, 2008.
- International Conference INCCOM-6, Kanpur, India, Dec. 2007.
- International Conference on Computational Engineering and Sciences, Chennai, India, 2005.
- International Conference on Recent Advances in Composites, Benares, India, 2004.
- Indira Gandhi Centre for Atomic Research, Kalpakkam, India, 2000.
- University of Adelaiade, Adelaide, Australia, 1998.
- University of Sydney, Sydney, Australia, 1998.
- University of Waikato, Hamilton, New Zealand, 1998.
- Kent State University, Kent, USA, 1997.
- Hahn Meitner Institute and Technical University of Berlin, Berlin, Germany, 1996.
- Technical University of Darmstadt, Darmstadt, Germany, 1996.I
- Indira Gandhi Centre for Atomic Research, Kalpakkam, India, 1996.
- The University of Akron, Akron, USA, 1994.
- European Joint Research Centre, Ispra, Italy, 1994.
- Hahn Meitner Institute and Technical University of Berlin, Berlin, Germany, 1993. Institute for Materials Research IV, Karlsruhe, Germany, 1990.
- Institute for Materials Research II, Karlsruhe, Germany, 1984.
- Riso National Laboratory, Rosekilde, Denmark, 1984.

International Professional Visits and Assignments

• WEST GERMANY	June 1980 to November 1981. August to September 1984. June 1985 to July 1986. June 1990. August 1993. August 3 -18, 1996. December 14-30, 1996.
• ENGLAND	May 1981 November 1986.

• CANADA	August 15 to 23, 1980, July 2008
• DENMARK	August 19 to 25, 1984.
• FRANCE	August 1981. August 1987. July to August 1988. August 1993.
• SWITZERLAND	August 1987.
• JAPAN	July 28 to August 5, 1989.
• SPAIN	September 1989. April 1992.
• INDIA	July 1990, August 1996, Dec. 2000, Dec. 2004, Dec. 2005, Dec. 2007, March 2009
• HONG KONG	December 1992.
• ITALY	September 1994.
• COSTA RICA	May 1997.
• AUSTRALIA	July 1998.
• NEW ZEALAND	July 1998
• SINGAPORE	December 1999, December 2002.
• ARUBA	January 2002
• GREECE	July 2003.
• USVI	January 6-8, 2009

Presentation in Conferences

- Developing and Implementing a Modularized Flipping-The-Class Model. Joint MAA-AMS Meeting, San Diego, January 2018.
- Developing and Implementing a Flipping-the-Class Modularized Model to Enhance Student Success Rates in Gatekeeper Mathematics Courses. American Mathematical Society Sectional Meeting, Denton, July 2017.
- Presented a paper at the Sectional Meting of American Mathematical Society, Presented a paper at the International Conference on Plasticity, Plasticity -12, San Jose, Puerto Rico, 2012.
- Presented a Conference and a Keynote Lecture at the National Conference on Recent Innovations in Technology, Kottayam, India, March 2009.
- Invited to present a key-note paper and chair sessions at the 2nd Joint International Conference on Computational Engineering, Vancouver, Canada, 2008.
- Invited to present a key-note paper and chaired a session at ICES 08, Honolulu, HI, March 2008.
- Present a key-note lecture and chair a session at INCCOM-6, Kanpur, India, Dec. 2007.
- Presented a key-note paper and chaired a session at ICES 05, I.I.T., Chennai, India, Dec. 2005.
- Presented a key-note paper and chaired a session at ICRACM-04 (sponsored by AFOSR), Benares, India, Dec. 2004.
- Presented a paper at the ICSSD 02 Conference, Singapore, 2002.

- Presented a paper at the 5th Annual FAA/Air Force/NASA/Navy Workshop on the Application of Probabilistic Methods to Gas Turbine Engines, Holiday Inn Cleveland West, Westlake, 2001.
- To present a paper at Space Technology and Applications International Forum-STAIF Conference, Albuquerque, 2002.
- Presented a paper at the APCOM '99 Conference, Singapore, 1999.
- Organized an International Symposium, Chaired a session and Presented a paper at I International Conference on Computational Engineering Sciences (ICES ’98), Atlanta, 1998.
- Presented a paper and chaired a session at the EMAC ’98 Conference, Adelaide, Australia, 1998.
- Organized an International Symposium, Chaired a session and Presented a paper at International Conference on Computational Engineering Sciences (ICES ’97), Costa Rica, 1997.
- Presented an invited paper, Chaired a session at the 32nd Annual Meeting of the Society for Engineering Sciences, New Orleans, USA, 1995.
- Organized an International Symposium, Chaired a session and Presented a paper at International Conference on Computational Engineering Sciences (ICES '95), Hawaii, 1995.
- Presented a paper at the 2nd EUROMECH conference, Genoa, ITALY, September 1994.
- Presented a paper, Chaired a session and Member of Panel Discussion Team at International Seminar on Inelastic analysis, Fracture and Life Prediction, Paris, France, August 1993.
- Organized an International Symposium, Chaired a session and Presented a paper at International Conference on Computational Engineering Sciences (ICES '92), Hong Kong, 1992.
- Presented a paper at the Third International Conference on Computational Plasticity, Barcelona, Spain, 1992.
- Presented a paper at the Workshop on Computational Methods in Life Prediction. NASA- Langley Research Center, Hampton, VA, USA, 1992.
- Presented an invited paper and Chaired a session at the 22nd Midwestern Mechanics Conference, Rolla, MO, USA, Oct. 1991.
- Presented an invited paper and Chaired a session at the International Symposium PLASTICITY- 91, Paris, France, 1991.
- Presented a paper at the International Conference on Structural Testing, Analysis and Design, Bangalore, India, July 1990.
- Presented a paper at the International Conference on Computational Plasticity, Barcelona, Spain, 1989.
- Invited to Chair a session at FEMCAD-89, Paris, France, 1989.
- Chaired a session at the International Symposium - PLASTICITY-89, Tsu, Japan, 1989.
- Presented a paper at the Structural Integrity and Durability of Reusable Space Propulsion Systems, Cleveland, USA, 1989.
- Presented a paper at the International Seminar on the Inelastic Behavior of Solids-Models and Utilization, Besancon, France, 1988.

- Presented a paper at the 9th International Conference on Structural Mechanics in Reactor Technology, Laussane, Switzerland, 1987.
- Attended the workshop on HOST (Hot Section Technology), West Lake, Ohio, 1986. Presented a paper at the Workshop on Continuum Mechanics, Roorkee, 1986.
- Invited to present a paper at the 8th International Conference on Structural Mechanics in Reactor Technology, Brussels, Belgium, 1985.
- Presented a paper at the Workshop on Solid Mechanics, Roorkee, 1985.
- Presented a paper at the 16th International Congress of Theoretical and Applied Mechanics, Lyngby, Denmark, 1984.
- Invited to Chair a session and present a paper at the PVP-ASME Conference, Orlando, USA, 1982.
- Attended the 6th International Conference on Structural Mechanics in Reactor Technology, Paris, France, 1981.
- Attended the ANS/ENS Topical Meeting on 'Advances in Mathematical Methods for the Solution of Nuclear Engineering Problems', Munich, West Germany, 1981.
- Presented a paper at the 15th International Congress of Theoretical and Applied Mechanics, Toronto, Canada, 1980.
- Presented a paper at the 45th Annual Session of the National Academy of Sciences, India, 1975.
- Presented a paper at the 42nd Annual Session of the National Academy of Sciences, India, 1972.

Personal Information

• Education	Ph.D., 1975. Area: Mathematics, I.I.T[3]., Roorkee, India. (Ranked #3 in the World, please see the attachment.)
• Citizenship	U.S. Citizen.

[3] **Excerpts from the CBS 60-minutes report (June 20, 2003) about IIT, India:**

"Put Harvard, MIT and Princeton together, and you begin to get an idea of the status of IIT in India. (CBS)"

"Last year, 178,000 high school seniors took the entrance exam called the JEE. Just over 3,500 were accepted, or less than two percent. Compare that with Harvard, which accepts about 10 percent of its applicants."

See Appendix A for a complete list of top 100 universities.

LIST OF PUBLICATIONS
(Professor Vinod K. Arya)

Journal Papers

1. Nonsteady Membrane Creep of Anisotropic Circular Plates (with N. S. Bhatnagar). **Journal** of the Physical Society of Japan. 35, 1212-1217, 1973.Large Strain Creep Analysis of Thick-Walled Cylinders (with N. S. Bhatnagar). International Journal of Nonlinear Mechanics. 9, 127-140, 1974.
2. Creep of Thick-Walled Spherical Vessels Under Internal Pressure Considering Large Strains (with N. S. Bhatnagar). Indian Journal of Pure and Applied Mathematics. 6, 1080-1089, 1975.
3. Anisotropic Creep Under Combined Tension and Torsion (with N. S. Bhatnagar). Journal of the Aeronautical Society of India. 26, 101-103, 1974.
4. Creep of thick-Walled Orthotropic Cylinders Subject to Combined Internal and External Pressures (with N. S. Bhatnagar). Journal of Mechanical Engineering Science. 18, 1-5,1976.
5. Creep Deformation of Symmetrically Loaded Shells of Revolution Under Tresca Yield Criterion and Mises Flow Rule (with N. S. Bhatnagar and S. Kumar). Journal of Structural Engineering. 4, 77-86, 1976.
6. Creep Analysis of Pinjointed Frameworks (with N. S. Bhatnagar and K.K. Debnath). Indian Journal of Technology. 18, 518-519, 1977.
7. Creep Analysis of Rotating Orthotropic Disks (with N. S. Bhatnagar). Nuclear Engineering and Design. 55, 323-330, 1979.
8. Creep of a Thin Orthotropic Circular Plate Containing a Hole at the Center (with N. S. Bhatnagar and K. K. Debnath). Nuclear Engineering and Design. 56, 393-403, 1980.
9. Creep Analysis of Orthotropic Rotating Cylinder (with N. S. Bhatnagar and K.K. Debnath). Journal of Pressure Vessel Technology. 102, 371-377, 1980.
10. The Spherical Vessel With Anisotropic Properties Considering Large Strains (with N. S. Bhatnagar and K.K. Debnath). International Journal of Nonlinear Mechanics. 15, 185-193, 1980.
11. Creep Analysis of Orthotropic Circular Cylindrical Shells (with N. S. Bhatnagar and K. K. Debnath). International Journal of Pressure Vessels and Piping. 11, 167-190, 1983.
12. Creep Analysis of An Internally Pressurized Orthotropic Rotating Cylinder (with N. S. Bhatnagar and P. S. Kulkarni). Nuclear Engineering and Design. 83, 379-388, 1984.
13. Steady-State Creep of Orthotropic Rotating Disks of Variable Thickness (with N. S. Bhatnagar and P. S. Kulkarni). Nuclear Engineering and Design. 91, 121-141, 1986.
14. Creep Analysis of Orthotropic Rotating Cylinders Considering Finite Strains (with N. S. Bhatnagar and P. S. Kulkarni). International Journal of Nonlinear Mechanics. 21, 61-71, 1986.
15. Analysis of an Orthotropic Thick-Walled Cylinder Under Primary Creep Conditions (with N. S. Bhatnagar and P. S. Kulkarni). International Journal of Pressure Vessels and Piping. 23, 165-185, 1986.
16. On the Creep Deformation, Bulge Behavior and Failure of Zircaloy Tubes. Res Mechanica. 20, 33-52, 1987.

17. Finite Element Implementation of Robinson's Unified Viscoplastic Model and Its Application to Some Uniaxial and Multiaxial Problems (with A. Kaufman). Journal of Engineering Computations, 6, 3, 237-247, 1989.
18. Analytical and Finite Element Solutions of Some Problems Using a Viscoplastic Model. Journal of Computers and Structures, 33, 4, 957-967, 1989.
19. An Elastic-Plastic-Creep and Life Analysis of a Cowl Lip (with G. R. Halford and M. E. Melis). International Journal of Fatigue and Fracture of Engineering Materials & Structures.9, 4, 201-208, 1991.
20. Application of Finite Element Based Solution Technologies for Viscoplastic Structural Analyses. Communication in Applied Numerical Methods.7, 435-444, 1991.
21. Finite Element Analysis of Structural Components Using Viscoplastic Models With Application to a Cowl Lip Problem (with G. R. Halford). Journal of Materials at High Temperatures. 9, 4, 201-208, 1991.
22. Application of a Thermal Life Prediction Model to High-Temperature Alloys, B1900+Hf and Haynes 188 (with G.R. Halford, J.F. Saltsman and M.J. Verrilli). American Society of Testing Materials, Special Technical Publication No. 1122, 1992.
23. Nonlinear Structural Analysis of Cylindrical Thrust Chambers Using Viscoplastic Models. AIAA Journal of Aerospace Propulsion and Power. 8, 3, 598-604, 1992.
24. Viscoplastic Analysis of an Experimental Cylindrical Thrust Chamber Liner (with S.M Arnold). AIAA Journal, 30, 3, 781-789, 1992.
25. Thermomechanical and Low Cycle Fatigue Life Prediction of Metal Matrix Composites - A Local Stress-Strain Approach (with G. R. Halford). Special Technical Publication No. 1122, American Society for Testing of Materials, pp 107-119, 1992.
26. Reduction of Thermal Residual Stresses in Advanced Metallic Composites Based upon a Compensating/Compliant Layer Concept (with S. M. Arnold). Journal of Composite Materials. 26, 9, 1287-1309, 1992.
27. Finite Element Analysis of Structural Engineering Problems Using a Viscoplastic Model Incorporating Two Back Stresses (with G. R. Halford). ASME Journal of Engineering for Gas Turbines and Power, 117, 2, pp. 377-383, 1995.
28. Efficient and Accurate Explicit Time-Integration Algorithms with Application to Viscoplastic Models. International Journal of Numerical Methods in Engineering, 39, pp. 261-279, 1996.
29. Large Displacement Structural Durability Analyses of Simple Bend Specimen Emulating Rocket Nozzle Liners (with G. R. Halford and L. J. Westfall). AIAA Journal of Propulsion and Power. 12, 1, 1996.
30. Structurally-Compliant Rocket Engine Combustion Chamber - *Experimental/Analytical Validation* (with R.S. Jankovsky, J. M. Kazaroff, and G.R. Halford). AIAA Journal of Spacecraft and Rockets, 32,4, pp. 645-652, 1995.
31. Kinetics of Oxidation and Cracking and Finite Element Analyses of MA956 and MA956/Sapphire Composite System (with K. N. Lee, G. R. Halford and C. A. Barrett). Metallurgical and Materials Transactions A, 27A, 3279-3291, Oct. 1996.
32. Analyses of Oxide Layer Cracking Patterns of MA956 and MA956/Sapphire Composite Systems (with G. R. Halford). Contemporary Research in Engineering Science (ed. Batra, R.C.), pp. 41-54, Springer, 1995.
33. Thermal Strain Fatigue Modeling of a Matrix Alloy for a Metal Matrix Composite. ASTM-STP 1371. (Eds. Shitoglu and Maier), 1999.

34. Thermal Strain Fatigue Modeling of MMC's (with G. R. Halford and B. A. Lerch). ASTM Symposium on Thermomechanical Fatigue Behavior of Materials, Norfolk, VA, November 4-5, 1998.
35. NASA-GRC Fatigue Crack Initiation Life Prediction Models* (with Halford, G. R.): Presented at the 5th Annual FAA/Air Force/NASA/Navy Workshop on the Application of Probabilistic Methods to Gas Turbine Engines, Holiday Inn Cleveland West, Westlake, 2001.
36. Structural Analyses of Stirling Power-Convertor Heater Head for Long-Term Reliability, Durability, and Performance* (with Gary R. Halford, Ashwin Shah, David L. Krause, and Paul A. Bartolotta). Presented at Space Technology and Applications International Forum-STAIF Conference, Albuquerque, Feb. 2002.
37. Numerical Analysis of Creep-Damage in Structural Components. (with Shantaram S. Pai). Proceeding of International Conference on Computational Engineering Sciences, 2005.
38. Durability Effect of Repeated Thermal Decay of Stirling Convertor Heater Head Operating Temperature (with Dr. G.R. Halford). NASA-TM, 2005.
39. Computational Analysis of Inelastic Response of Ceramic Matrix Composites (with Dr. S. S. Pai). Proceedings of 2nd Joint International Conference of Computational Engineering, Vancouver, Canada, 2008.
40. Developing and Implementing a Modularized Flipping-The-Class Model. Joint MAA-AMS Meeting, San Diego, January 2018. (Abstract only).
41. Developing and Implementing a Flipping-the-Class Modularized Model to Enhance Student Success Rates in Gatekeeper Mathematics Courses. American Mathematical Society Sectional Meeting, Denton, July 2017. (Abstract only).

Technical Publications/Reports

42. Creep Analysis of Thin-Walled Anisotropic Cylinders Subjected to Internal Pressure, Bending and Twisting (with N. S. Bhatnagar and P. S. Kulkarni). Proceedings of Workshop on Solid Mechanics, Roorkee, 1985.
43. Primary Creep Analysis of an Anisotropic Thick-Walled Spherical Shell (with N. S. Bhatnagar and P. S. Kulkarni. Proceedings of Workshop on Continuum Mechanics, Roorkee, 1986.
44. Numerical Integration and Implementation of Viscoplastic Models into Finite Element Codes. (with K. Hornberger, H. Stamm and W. Huber). Proceedings of International Conference on Computational Plasticity, Barcelona, Spain, 1987.
45. On the Integration of Viscoplastic Models and Its Application for Stress Analysis in Thick-Walled Cylinders (with K. Hornberger, H. Stamm). Proceedings of 9th International Conference on Structural Mechanics in Reactor Technology, Lausanne, Switzerland, 1987.
46. Analysis of Local Inelastic (Ballooning) Behavior and Time-to-Failure of Zircaloy Claddings. Transactions of the 8th International Conference on Structural Mechanics in Reactor Technology. Brussels, Belgium, Paper No. C-2/4, 1985.

* Because of involvement of proprietary information, this research work is unpublishable in open literature.

47. Finite Element Analysis of Metal-Matrix Composite Structures (with D. N. Robinson). Proceedings of ASME/ SES Symposium on "Constitutive Equations for Life Prediction Models for High Temperature Applications", Berkeley, CA, 1988.
48. Finite Element Implementation of Viscoplastic Models (with A. Kaufman). NASA CP-2493, pp. 335-248, 1987.
49. Structural Response of SSME Turbine Blade Airfoils (with A. A. Aziz and R. L. Thompson). Proceedings of the Earth-to-Orbit Conference, NASA Marshall Space Flight Center, Huntsville, Alabama, 1989.
50. Finite Element (MARC) Solution Technologies for Viscoplastic Analyses (with R. L. Thompson). Proceedings of Conference on Lewis Structures' Technology, Cleveland, USA, pp. 73-79, 1988.
51. Finite Element Implementation of Viscoplastic Models and Its Application to Nonlinear Structural Analyses (with A. Kaufman). Proceedings of International Conference on Engineering Sciences, Atlanta, USA, 1988.
52. Analytical and Finite Element Solutions of Some Problems Using a Viscoplastic Model. NASA Technical Memorandum, 1988.
53. Analysis of Damage in MMC Components Using an Internal State Variable Model. NASA CP -10030, 53-58, 1989.
54. Finite Element Elastic-Plastic-Creep and Cyclic Life Analysis of a Cowl Lip (with Gary R. Halford and M. E. Melis). NASA TM- 102342, 1990.
55. Application of Finite-Element-Based Solution Technologies for Viscoplastic Structural Analyses. NASA CR-185196, 1990.
56. Finite Element Analysis of Structural Components Using Viscoplastic Models. Proceedings of Second International Conference on Computational Plasticity, Barcelona, 1989.
57. Finite Element Analysis of Structural Components Using Viscoplastic Models With Application to a Cowl Lip Problem (with G. R. Halford). NASA CR-185189, 1990.
58. Application of a Thermal Life Prediction Model to High-Temperature Alloys, B1900+Hf and Haynes 188 (with G.R. Halford, J.F. Saltsman and M.J. Verrilli). NASA TM-4226, 1990.
59. Nonlinear Structural Analysis of Cylindrical Thrust Chambers Using Viscoplastic Models. NASA CR-185253, 1990.
60. Elastic/Plastic Analyses of Advanced Composites Investigating the Use of the Compliant Layer Concept in Reducing Residual Stresses Resulting from Processing (with S. M. Arnold). NASA Technical Memorandum, 103204, 1991.
61. Viscoplastic Analysis of an Experimental Cylindrical Thrust Chamber Liner (with S. M. Arnold). NASA Technical Memorandum, 1990.
62. Reduction of Thermal Residual Stresses in Advanced Metallic Composites by Application of a Compensating/Compliant Layer Concept (with S. M. Arnold). Proceedings of HITEMP Conference, Lewis Research Center, Cleveland, OHIO, USA, 1990.
63. An Analytical Model for the Analysis of Ballooning Behavior of Zircaloy Claddings. Kernforschungszentrum Karlsruhe, Report, 1981.
64. On the Integration of Unified Viscoplastic Models (with K. Hornberger and H. Stamm). Kernforschungszentrum Karlsruhe, West Germany, Report No. KfK-4082, 1986.

65. Untersuchengung zum Viscoplastichen Materialverhalten im Hochtempratur Bereich (with K. Hornberger and H. Stamm). Kernforschungszentrum Karlsruhe, Report, 1986.
66. Application of Viscoplastic Models in the Finite Element Analyses of Structural Engineering Problems. (with G. R. Halford). Computational Mechanics '92. (Editors: Atluri et al.).
67. Life Assessment of Structural Components Using Inelastic Finite Element Analyses (with G. R. Halford). Proceedings of the Workshop on Computational Methods for Failure Analysis and Life Prediction. NASA-Langley Research Center, Hampton, Virginia, 1992.
68. Structurally-Compliant Rocket Engine Combustion Chamber - Experimental/Analytical Validation (with R. Jankovsky, J. M. Kazaroff and G. R. Halford). NASA TP-3431, 1993.
69. Finite Element Analysis of Structural Engineering Problems Using a Viscoplastic Model Incorporating Two Back Stresses (with G. R. Halford). Proceedings of Int. Seminar on Inelastic Analysis, Fracture and Life Prediction, Paris, France, 1993 and NASA TM-106046, 1993.
70. Large Displacement Structural Durability Analyses of Simple Bend Specimen Emulating Rocket Nozzle Liners (with G. R. Halford). NASA TM 106521, June 1994.
71. Efficient and Accurate Explicit Time-Integration Algorithms with Application to Viscoplastic Models. NASA CR 195342, August 1994.
72. Kinetics of Oxidation and Cracking and Finite Element Analyses of MA 956 and MA 956/ Sapphire Composite Systems. Part I – Experimental (with K. N. Lee, G. R. Halford and C. A. Barrett). NASA-HITEMP Proceedings, 1994.
73. Kinetics of Oxidation and Cracking and Finite Element Analyses of MA 956 and MA 956/ Sapphire Composite System. Part II – Analytical (with K. N. Lee, G. R. Halford and C. A. Barrett). NASA-HITEMP Proceedings, 1994.
74. Analyses of Oxide Layer Cracking Patterns of MA956 and MA956/Sapphire Composite Systems (with G. R. Halford). Proceedings of Recent Developments in Engineering Science, New Orleans, Oct.- Nov. 1995.
75. Large Displacement Structural Durability Analysis of Simple Bend Specimen Emulating Rocket Nozzle Liners (with G. R. Halford). Computational Mechanics '95, Theory and Applications. (Eds. Atluri, Yagawa and Cruse), pp. 1285-1291, 1995.
76. Creep Analysis of a Rotating Disk Using a Strain Hardening Law (with N. S. Bhatnagar). Proceedings of the National Academy of Sciences, India, 1981.
77. Thermal Fatigue Limitations of Continuous Fiber Metal Matrix Composites (with G. R. Halford). Physics and Process Modeling (PPM) and other Propulsion R&T Conference. NASA CP-10193, Vol. 1, Paper 19, NASA Lewis Research Center, Cleveland, OH, May 1, 1997, PP. 1-11.
78. Advanced Viscoplastic Structural and Cyclic Life of a Cowl Lip (with G. R. Halford). International Symposium on Inelastic Deformation, Damage and Life Analysis ’97, Advances in Computational Engineering Science, ICES ’97, Eds. S.N. Atluri and Y.G. Yagawa, San Jose, Costa Rica, May 4-9, 1997, pp. 2-7.
79. Thermal stresses – the Achilles’ Heal of Continuous Fiber Reinforced Metal Matrix Composites (with G. R. Halford). Thermal Stresses ’97. Proceedings of the Second International Symposium on Thermal Stresses and Related Topics, Rochester Institute of Technology, NY, June 8-11, 1997, pp. 41-44.

80. Finite Element Analysis of Structural Engineering Problems Using an Advanced Viscoplastic Model (with G. R. Halford). Proceedings of the 3rd Biennial Engineering Mathematics and Analysis Conference (EMAC '98), Adelaide, Australia, (Eds: E.O. Tuck and J.A.K. Stott), 1998, pp. 91-94.
81. Large-Displacement Creep Analysis of Simple Bend Specimen Emulating Rocket Nozzle Liners (with N. S. Bhatnagar). International Symposium on Inelastic Deformation, Damage and Life Analysis '98. (ICES '98), Oct 6-9, Atlanta, 1998.
82. Structural Analyses of Stirling Power Convertor Heater Head for Long-Term Reliability, Durability, and Performance. NASA-TM-2—2-211327, April 2002.
83. Durability Assessment of Gamma TiAl – Final Report. (with Susan L. Draper, Bradley A. Lerch, Michael Pereira, Kazuhisa Miyoshi and Wyman Zhuang). NASA TM-212303, 2004.

Books/Manuals

84. Introduction to Matrix Algebra. (Written Under Curriculum Development Program, Government of India, 1976-77(unavailable)).
85. FLAPS (Fatigue Life Analysis Programs) – Computer Programs to Predict Cyclic Life Using the Total Strain Version of StrainRange Partitioning and Other Life Prediction Methods. Users' Manual and Example Problems. Version 1.0, 2003.
86. FLAPS (Fatigue Life Analysis Programs) – Computer Programs to Predict Cyclic Life Using the Total Strain Version of StrainRange Partitioning and Other Life Prediction Methods. Users' Manual and Example Problems. Version 2.0, 2007.

Papers Under Preparation

87. Large Displacement Finite Element Elastic-Plastic-Creep and Life Analysis of Simple Bend Specimen Emulating Rocket Nozzle Liners.
88. Large Displacement Finite Element Viscoplastic and Life Analysis of Simple Bend Specimen Emulating a Rocket Nozzle Liners.
89. Finite-Element Viscoplastic and Life Analysis of a Cowl Lip.
90. Finite-Element and Experimental Analysis of the High Velocity Leading-Edge Impact of a Turbine Blade.

APPENDIX A

International comparisons > **The world's top 100 technology universities**

Source: ***The Times*** *Higher Education Supplement* and QS Quacquarelli Symonds, published October 7 2005, LONDON, ENGLAND.

2005 rank	2004 rank	Institution	Country	Peer score	Citations per paper
1	2	Massachusetts Institute Technol	US	100	6
2	1	University of California, Berkeley	US	98.7	6.3
3	**4**	**Indian Institutes of Technology**	**India**	**86.4**	**-**
4	3	Stanford University	US	84.9	6.8
5	5	Imperial College London	UK	81.3	4.1
6	8	Cambridge University	UK	79.4	5.1
7	6	California Institute of Technology	US	78	7.1
8	7	Tokyo University	Japan	76.8	-
9	9	National University of Singapore	Singapore	74.1	-
10	10	Beijing University	China	68.5	-
11	11	Tokyo Institute of Technology	Japan	67.2	-
12	16	ETH Zurich	Switzerland	67.1	6.6
13	12	Oxford University	UK	66	5.7
14	14	Carnegie Mellon University	US	65.8	4.9
15	24	Delft University of Technology	Netherlands	65.6	-
16	26	New South Wales University	Australia	60.4	-
17	15	Tsing Hua University	China	60.1	-
18	22	Melbourne University	Australia	59.9	4.5
19	23	Kyoto University	Japan	59.5	-
20	17	Georgia Institute of Technology	US	58.7	3.8
21	13	Harvard University	US	58.3	7.6
22	19	Ecole Polytechnique	France	58.1	4.2
23	20	Hong Kong University Sci & Technol	Hong Kong	57.6	3.2
24	18	Monash University	Australia	57	-
25	29	Technion Israel Inst of Technol	Israel	56.4	-
26	33	Nanyang Technological University	Singapore	56.2	-
27	21	Illinois University	US	54	4.9
28	38	Aachen RWTH	Germany	53.6	3.1
29	31	Australian National University	Australia	53.5	-
30	27	University of Texas at Austin	US	53.4	4
31	40	University of Toronto	Canada	52.4	4.1

32	44	Vienna University of Technology	Austria	52.1	3.1
33	46	Technical University Munich	Germany	51.9	3.7
34	30	Cornell University	US	51.5	6
35	25	Purdue University	US	51.2	4.2
36=	36	University of California, Los Angeles	US	50.6	5.5
36=	41	Ecole Poly Fédérale de Lausanne	Switzerland	50.6	5.2
38	34	Princeton University	US	49.8	7
39	-	Catholic University Leuven (French)	Belgium	49.6	4.2
40	47	Queensland University	Australia	48.3	3.2
41	45	Manchester University & Umist	UK	47.2	3.6
42=	37	Korea Adv Inst of Sci & Technol	South Korea	46.5	-
42=	55	McGill University	Canada	46.5	4.1
44=	28	Massachusetts University	US	46.2	4.7
44=	63	Lomonosov Moscow State University	Russia	46.2	-
44=	39	Technical University of Berlin	Germany	46.2	-
47	52	University of British Columbia	Canada	45.7	-
48	48	Sydney University	Australia	45.1	4.1
49	57	Auckland University	New Zealand	44.7	-
50	42	China University of Sci & Technol	China	44.4	-
51	59	Waterloo University	Canada	44.3	-
52	49	Helsinki University of Technology	Finland	44	-
53	43	Osaka University	Japan	43.2	-
54	64	Karlsruhe University	Germany	42.6	-
55	35	University of Michigan	US	42.5	4.9
56	66	Politecnico di Milano Technical Univ	Italy	42.1	-
57	72	National Taiwan University	Taiwan	41.8	-
58	71	Royal Institute of Technology	Sweden	41.7	3.9
59	51	Chalmers University of Technology	Sweden	41.5	-
60	60	Technical University, Denmark	Denmark	41	5
61	53	University of California, San Diego	US	40.9	5.3
62	58	Yale University	US	40.5	8.2
63	75	Twente University	Netherlands	39.5	-
64	56	Wisconsin University	US	39.2	4.2
65=	67	Seoul National University	South Korea	38.9	-
65=	78	Shanghai Jiao Tong University	China	38.9	-
67=	50	Texas A&M University	US	38.8	3.6
67=	-	Queensland University of Technol	Australia	38.8	-
69	-	Indian Institutes of Management	India	38.5	-

70	93	University of Technology, Sydney	Australia	38	-
71	79	Edinburgh University	UK	37.8	3.2
72	70	Virginia Polytechnic Institute	US	37.1	-
73	73	Boston University	US	37	6.2
74=	68	Eindhoven University of Technology	Netherlands	36.9	3.6
74=	69	Stuttgart University	Germany	36.9	-
76	95	Chinese University Hong Kong	Hong Kong	36.7	-
77	90	Paris VI, Pierre et Marie Curie	France	36	4.8
78	61	Glasgow University	UK	35.9	-
79	54	Adelaide University	Australia	35.3	-
80	-	Hong Kong University	Hong Kong	35	-
81=	62	Penn State University	US	34.8	4.3
81=	76	Johns Hopkins University	US	34.8	5.1
81=	79	Tohoku University	Japan	34.8	-
84	73	Ecole Normale Supérieure, Paris	France	34.7	5.4
85	83	Fudan University	China	34.4	-
86=	82	Bologna University	Italy	34.1	3.4
86=	98	TH Darmstadt	Germany	34.1	-
88	-	Catholic University Leuven (Flemish)	Belgium	34	-
89	88	Rensselaer Polytech Institute	US	33.8	4.5
90=	-	City University Hong Kong	Hong Kong	33.5	-
90=	100	RMIT University	Australia	33.5	-
92	87	Columbia University	US	33.4	5.2
93=	85	Norwegian University Sci & Technol	Norway	33.1	3.4
93=	77	Montpellier I University	France	33.1	-
95	86	Pennsylvania University	US	32.5	5.6
96	-	Curtin University of Technology	Australia	32.4	-
97	91	Trinity College, Dublin	Ireland	32.2	-
98	-	Ghent University	Belgium	32.1	4.5
99	65	St Petersburg State University	Russia	31.7	-
100=	-	Chulalongkorn University	Thailand	31.4	-
100=	-	Nagoya University	Japan	31.4	-

Source: *The Times Higher Education Supplement* and QS Quacquarelli Symonds, published October 7 2005