

## DR. EDWARD CHARLES KEPPELMANN

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Abbreviated version

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## EDUCATION & EMPLOYMENT

- Born January 27th 1961 in Denver Colorado.
- 1984 B.S. (with Honors) in Electrical Engineering and Computer Science, University of Colorado-Boulder.
- 1991 Ph.D. In Mathematics (Algebraic Topology), University of Wisconsin-Madison under the direction of Dr. Edward Fadell.
- Summer 1991 Post doc at the Institute of Mathematical Sciences, Madras India.
- 1991-1993 Visiting Assistant Professor Texas A & M University.
- 1993-97 Assistant Professor University of Nevada Reno.
- 97-Present Associate Professor with tenure University of Nevada-Reno.
- Fall 1999 Visiting Associate Professor University of Wisconsin Madison (Sabbatical).
- Winter Quarter 2000 Visiting Associate Professor UCLA (Sabbatical).
- 2001-Early August 2006 Chairman Department of Mathematics and Statistics University of Nevada Reno.
- August 2006-present College of Science K-12 Outreach coordinator for Nevada.

## Selected accomplishments in Outreach

- Production of the video: *The Keck Museum - where the adventure of a lifetime begins* (Still in preparation). This video examines Nevada History including John Mackay, the Comstock era, Palentology, Seismology, and modern mining. (Intended for grades 4-6)
- On the design team for Gateway Math - a fourth year math course to follow 2nd year algebra covering topics in Forensics, Medical math and health issues, Barcodes, cryptography, random numbers, the gambling industry, and life skills for investing and numerical literacy.
- Brought the University of Arizona program MAPPS (Math and Parent Partnerships) to Nevada. Received the Ed Collabortaive Best in Individual achievement award in 2006 for this effort.
- Obtained all the content for the initial version of [www.washoemath.org](http://www.washoemath.org)
- With the help of the center for teaching excellence I organized, designed, and helped conduct a focus group for students from rural Nevada.
- Served on the core group FIPSE grant proposal team to integrate math and science instruction and develop methods to help the transition between junior high and high school math and science and to improve the math skills of science teachers. [This will be decided in late September 2007].

## SELECTED ACCOMPLISHMENTS AS CHAIRMAN

- Established the compensated positions of Core Math director and associate chairman.
- Took great personal and professional risk to recruit and obtain authorization for many successful foreign TAs and temporary instructors.
- Successful recruitment and retention of quality administrative personnel for the full time of service.
- Major force behind the department self-study and outside review of 2006.
- Major administrative force behind the successful promotion and/or tenuring of 8 faculty.
- Recruitment and hiring of 5 new faculty.
- Major Author of the department's strategic plan.
- Negotiated the department's contentious transition from the College of Arts and Science to UNR's new College of Science.
- Assessment coordinator and author of the article *Assessment of the Major without Faculty buy-in* for the MAA's SUAM. Included extensive participation in a SUAM sponsored workshop on assessment.
- Successful advocate for the department to acquire new office space (space for 22 new part time faculty and graduate students).

- Helped create through the NSHE<sup>1</sup> Regents the change of name of the department from the Department of Mathematics to the Department of Mathematics and Statistics.
- Conducted over 35 senior exit interviews for graduating math majors.
- Negotiation of curriculum coordination and assessment with the college of Engineering.
- Promoted the cause of 5 faculty for major awards and grants within the NSHE.

## SERVICE

- Service to the Mathematical Association of America:
  - Vice Chair NoCaNeHi<sup>2</sup> Section of the MAA (98-99)
  - Chair NoCaNeHi Section of the MAA (99-00)
  - Secretary-Treasurer NoCaNeHi Section of the MAA (00-present)
  - Gubernatorial Candidate for the NoCaNeHi Section of the MAA (Spring 2005)
  - Member of the National MAA Committee on Undergraduate Student Activities:
    - \* Associate Director of Math Fest Student Paper presentations (01-03)
    - \* Director of Math Fest Student Paper presentations (05-07)
  - Was the major force behind changing the name of the NoCaNeHi section (From the Northern California Section) and helped change the boundaries of the section to annex the San Luis Obispo area and let the Southern California section annex Clark County Nevada where Las Vegas is located.
  - Helped the NoCaNeHi section institute a student poster session at its annual meeting.
- Referee for Topology and its Applications, various conference proceedings, Discrete and Continuous Dynamical Systems, The Pacific Journal of Mathematics, Mathematische Annalen, Fixed Point Theory and It's Applications, Fundamenta Mathematicae and the Research Council at the University of Leuven-Belgium. With Phil Heath (MUN) and Robert Brown (UCLA) appointed guest editor of Fixed Point Theory and Applications for two issues devoted to the conference Nielsen Theory and Related Applications (Summer 2004). Served as an outside examiner on the Ph.D. Thesis defense committee of Jianhan Guo at Memorial University in St John's Newfoundland Canada.
- Service to the NSHE: Chair for coordination of common course renumbering for Mathematics and Statistics; Member of the system wide remedial task force and chairman of the remedial math subcommittee.
- Non Chair Service to the University of Nevada Reno: UNR Child care Committee (Chair 96-99); The K-12 Math Education Task Force; The College of Arts and Sciences Courses and Curriculum committee; The College of Arts and Science Promotion and Tenure Committee; The College of Arts and Science Strategic Planning Committee; The Core curriculum advisory board; Core curriculum assessment team; and strategic planning team for the Core;

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<sup>1</sup>Nevada System of Higher Education

<sup>2</sup>Northern California, Nevada and Hawaii

UNR Outstanding TA evaluation committee; Faculty Ad Hoc Committee to evaluate the reorganization of the College of Education.

- Non Chair Service to the department of Mathematics and Statistics UNR: Executive Committee, Merit (Chair 2000-01), Curriculum (chair 96-99,06-07), Prize Exam, Geometry Search, Placement Exam, Director of Assessment, and Associate Chair (1999-2001).

## TEACHING (at UNR)

14 years at University of Nevada-Reno.

- Organized and taught large lecture format in Math 182. (Will do Math 181 in Fall 2007) The format includes daily homeworks, 4 exams and a final with makeups, and the web based EDUCO system.
- College Algebra; calculus for engineers I,II, and III; differential equations; business calculus; linear algebra I and II, groups rings and fields; point set topology; algebraic topology; introduction to statistics; probability and statistics for engineers.
- With the help of former student Bayard Webb (now of International Game Technology) developed the windows program FGB (Finite Group Behavior) for teaching beginning group theory. Enhancements are ongoing and the current version is available for free download from [www.unr.edu/homepage/keppelma/](http://www.unr.edu/homepage/keppelma/). This is now in use by schools all over the world and was featured with Ellen Maycock of Depauw university as a two day workshop at the JMM in San Antonio Texas, January 2006.
- Team developed (with Dr. Naik) Algebraic Topology (Math 441/641).

## PUBLICATIONS

- *Periodic Points on Nilmanifolds and Solvmanifolds*  
Pacific Journal of Mathematics, **164** # 1 (1994), pp. 105-128.
- *The Anosov theorem for exponential solvmanifolds*  
with Chris McCord, University of Cincinnati. Pacific Journal of Mathematics **170** # 1 (1995), pp. 143-159.
- *Addition Formulae for Nielsen numbers and For Nielsen Type Numbers of Fibre Preserving Maps*  
with P. Heath, Memorial University of Newfoundland and P. Wong, Bates College Lewiston Maine. Topology and its applications **67** # 2 (1995), pp. 133-157.
- *Fibre Techniques in Nielsen Periodic Point Theory on Nil and Solvmanifolds I*  
with P. Heath. Topology and its applications **76** # 3 (1997), pp. 217-247.
- *Explorations in Nielsen Periodic Point Theory for the Double Torus*  
with E. Hart, Colgate University. Topology and its applications **95** # 1 (1999), pp. 1-30.
- *Fibre Techniques in Nielsen Periodic Point Theory on Solvmanifolds II*  
with P. Heath. Topology and its Applications **106** # 2 (1997), pp. 149-167.

- *Fibre techniques in Nielsen periodic point theory on solvmanifolds III: Calculations* with P. Heath. *Quaestiones Mathematicae* **25 # 2** (2002), pp. 177-208.
- *Model solvmanifolds for Lefschetz and Nielsen Theories* with P. Heath. *Quaestiones Mathematicae* **25 # 4** (2002), pp. 483-501.
- *Learning Beginning Group Theory with Finite Group Behavior* with Bayard Webb of International Game Technology. From the collection *Innovations in teaching abstract algebra*, MAA Notes **60**, pp 45-53.
- *Linearizations for maps of Nil and Solmanifolds* *Handbook of Topological Fixed point Theory*, Springer Dordrecht 2005, p. 83-127.
- *Nielsen periodic point theory for periodic maps on orientable surfaces* with E. Hart. *Topology Appl.* 153 (2006), no. 9, 1399–1420.
- *Homotopy Minimal Periods For Maps on three dimensional Solvmanifolds* with Jerzy Jezierski of Warsaw Agricultural University in Warsaw Poland and Waclaw Marzantowicz of A. Mickiewicz University of Poznan Poland. Accepted for *Topology and Its Applications* and currently under revision.
- *Homotopy Minimal Periods For Maps on four dimensional Solvmanifolds* with J. Jezierski and W. Marzantowicz under preparation.
- *Tools For Nielsen periodic point calculations on the figure eight* with E. Hart and P. Heath accepted for publication in *Fundamenta Mathematicae* and currently under revision.
- *Nielsen Numbers on Seifert 3-manifolds* with Phillippe Mazaud (UNR adjunct) in preparation.
- *An iff Anosov theorem for model solvmanifolds* with P. Heath in preparation.

## MATH REVIEWS

Have completed 24 reviews to date for Math-Sci Net. (Titles available on request)

## SELECTED PRESENTATIONS - since 2001

- *Nielsen Periodic Point Calculations on Orientable surfaces of with genus  $g > 1$*  Invited Speaker at the conference Fixed Point Theory and It's Applications, Haifa Israel (June 2001).
- *Nielsen Periodic Point Calculations on Orientable surfaces of with genus  $g > 1$*  Invited Speaker at the conference Topological Methods in Nonlinear Analysis, Bedlewo Poland (June 2001).
- *The algebra of Rediemester Classes* Invited presenter at the workshop Finitely Presented Groups: Questions and Algorithms, Trento Italy, July 2001.
- *Finite Group Behavior, also a tool for research* Invited Speaker at the International Conference on Computer Science and Its Applications, Plovdiv Bulgaria, August 2001.

- *Finite Group Behavior* Colloquium Speaker Sonoma State University, Fall 2001.
- *The Late Dr. Helga Schirmer, her contributions to Nielsen Theory in the Later Years* Invited Presentation at the X'ian China (Satellite Conference to the 2002 ICM) meeting on Topology, summer 2002.
- *Solvmanifolds: Matrix creations using Maple Syrup* invited presentation for CMC<sup>3</sup> Recreational Math conference South Lake Tahoe Nevada, Spring 2004.
- *Anosov results for fixed points and coincidences on Solvmanifolds* invited speaker at the conference on Nielsen Theory and related topics, Memorial University of Newfoundland Summer 2004.
- *Homotopy Minimal Periods for Three dimensional Solvmanifolds*, Plenary speaker for *Topological Theory of Fixed Points and Periodic Points* Mathematical Conference Center Będlewo Poland, July 2007.

## GRANTS

- Department of Education Grant during graduate study at UW-Madison. (This provided a tuition waiver and 1 years stipend while I completed my thesis).
- Received \$10,000 Junior Faculty Research Award (From July 1, 1994 until December 31, 1996).
- 1996 Educational enhancement grant (\$700) for the development of Honors Calculus (a writing intensive approach).
- 1997 Educational enhancement grant (\$2500) for the development of FGB a windows version of exploring small groups for use in beginning abstract algebra courses.
- 2002 with P. Heath of Memorial University Newfoundland (MUN) and Robert Brown of UCLA obtained a \$40,000 AARMS<sup>3</sup> grant for the funding of the conference Nielsen theory and related topics at MUN in summer 2004.
- 2004 \$10,000 ACES-EPSCOR (Applied Computing in the Environmental Sciences) grant on behalf of Dr. Krzysz Podgorski who joined UNR in Fall 2004.

## MEMBERSHIPS

- $\tau\beta\pi$  (Engineering Honor Society)
- $\eta\kappa\nu$  (Electrical Engineering Honor Society)
- AMS (American Mathematical Society)
- MAA (Mathematical Association of America)

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<sup>3</sup>Atlantic [Canada] Association for Research in the Mathematical Sciences