

Cahit Erkal

School Address

Department of Chemistry&Physics
The University of Tennessee at Martin
Martin, TN 38238
(731) 881-7432, cercal@utm.edu

EDUCATION

Ph.D. , Physics,
The University of Wisconsin-Madison, Madison, WI December 1986
High Energy Phenomenology/Theoretical Physics

Bachelor of Science, Engineering Physics
Hacettepe University, Ankara, Turkey Fall 1980

EMPLOYMENT HISTORY

Department of Chemistry&Physics, University of Tennessee Martin
(tenure&promotion to Associate, 2003; Professor 2008) January 2000 - present
Assistant to the associate editor for the NCSSMST (National Consortium for
Specialized Secondary Schools of Mathematics, Science & Technology) Fall,98-Jan., 2000

Adjunct Faculty, University of Central Oklahoma 8/1999-12/1999
Adjunct Faculty, University of Oklahoma, Physics Department 3/92-12/99
Faculty at the Oklahoma School of Science and Mathematics 7/91-12/99
Assistant Professor (temp. position), Physics Department,
Central Michigan University, Mt. Pleasant, MI 8/87-6/91
Visiting faculty/scientist, Department of Physics,
The University of Cincinnati, Cincinnati, OH 9/85-8/87
Research Assistant, University of Wisconsin-Madison, WI 9/86-8/87
Teaching Assistant, Hacettepe University, Ankara-Turkey 1979-80
System Analyst, ECN (Netherlands Energy Center)-Alkmaar, Netherlands 1978

SCHOLARLY ACTIVITY

Refereed Journal Publications

Includes articles in *Zeitschrift für Physik C*; *Journal of Physics G: Nuclear Physics*; *Journal of Economic Letters*; *International Journal of Forecasting*; *Journal of European Physics*; *Chaos*; *International Journal of Bifurcation and Chaos*; *Nonlinear Dynamics, Psychology, and Life Science*; *Journal of International Financial Markets, Institutions, and Money*; *Papers of the Applied Geography Conferences*; and two published reports.

Richard T. Baillie, A. Cecen, C. Erkal, Normal heartbeat series are nonchaotic, nonlinear, and multifractal: new evidence from semiparametric and parametric tests, *Chaos* 19, 028503(2009)

A.Cecen and C.Erkal Effects of Trend and Periodicity on the Correlation Dimension and the Lyapunov Exponents, *International Journal of Bifurcation and Chaos*, Vol.18, No. 12, 1-9(2008)

- A. Cecen and C. Erkal Nonlinear Dynamic Modeling in ECG Analysis: A Heuristic Guideline, *Nonlinear Dynamics, Psychology, and Life Sciences*, Vol.12, No4, pp.359-369 (2008)
- C.Erkal Geodesics on a Hot Plate: An Example of a Two-Dimensional Curved Space Cahit Erkal, *European Journal of Physics*. 27, 891-897 (2006)
- Cahit Erkal, Nonlinear Characteristics of Daily Temperature Data and Nonlinear Modeling, *IEEE (Institute for Electrical and Electronics Engineers) 2005 International Conference on Systems, Man, and Cybernetics*, October 10-12, 2005 Proceedings, Waikoloa, Hawaii, pp. 192-197 (2005)
- Simpson, R. M. and C. Erkal, The Use of Teleconnections to Predict Temperatures in a Climate Transition Zone, *Papers of the Applied Geography Conferences*, Vol. 27, pp. 131-140,2004.
- Richard T. Baillie, A. Cecen, C. Erkal, Y.W. Han Measuring non-linearity, long memory and self-similarity in high-frequency European exchange rates, *Journal of International Financial Markets, Institutions, and Money*, Vol. 14, Issue 5, pp. 401-418(2004)
- C. Erkal The Simple Pendulum: A Relativistic Revisit *European Journal of Physics*, 21, 377-384 (2000)
- A. Cecen and C. Erkal Distinguishing Between Stochastic and Deterministic Behavior in High Frequency Foreign Exchange Rate Returns: Can Nonlinear Dynamics Help Forecasting? *International Journal of Forecasting*, Vol.12, Issue 4, page 465 (1996)
- A. Cecen and C. Erkal Foreign Exchange Rate Returns: Stochasticity and Deterministic Behavior, *Journal of Economic Letters*. 51, 323-329 (1996)
- I. N. Tansel and C. Erkal The Chaotic Characteristics of Three Dimensional Cutting, *International Journal of Machine Tools and Manufacturer*. Vol.32,No.2,811(1992)
- I.N. Tansel, C. Erkal and T. Keramidas "The Chaotic Characteristics of Three Dimensional Turning" a conference paper, presented and published at *1991 Winter Annual meeting at ASME* (December 1991).
- C.Erkal and M.G. Olsson Meson Electromagnetic Radii- A Model Independent Analysis, *Journal of Physics G: Nuclear Physics*, 13, 1355 (1987)
- C. Erkal and M.G. Olsson A Three-Channel Model of Pion-Pion Scattering and the Elastic and Inelastic Electromagnetic Vertex Functions. *Zeitschrift fur Physik C- Particles and Fields*, 33, 445 (1987)
- C. Erkal and M.G. Olsson On the Consistency of Electromagnetic Form Factor and Pion-Pion Scattering in the (1600) Region. *Zeitschrift fur Physik C- Particles and Fields*, 31, 615 (1986)
- C. Erkal and M.G.Olsson A Unified Treatment of the $\rho(1200)$ and $\rho'(1600)$ *Zeitschrift fur Physik C- Particles and Fields*, 29, 485 (1985)
- C. Erkal and M.G.Olsson A Simple Model for Pion Form Factor *Preprint MAD/PH/188*, June 1984
- C. Erkal Comparison of Neutron Spectrum Unfolding Codes Applied to CFRMF *ECN Report FYS/RASA-79/14*, Petten, Netherlands January 1979

Professional presentations

Conference presentations(Research)

- 1) Cahit Erkal Time series as a diagnostic tool for EKG The 74st Annual Meeting of the Southeastern Section of the American Physical Society (SESAPS) held November 8 - 10, 2007 (Thursday - Saturday), in Scarritt Bennett Center, Nashville, Tennessee.
- 2) Cahit Erkal, Nonlinear Characteristics of Daily Temperature Data and Nonlinear Modeling IEEE (Institute for Electrical and Electronics Engineers) 2005 International Conference on Systems, Man, and Cybernetics, October 10-12, 2005 Proceedings, Waikoloa, Hawaii,
- 3) Conference Presentation A Time Series Analysis of Temperature Data, January 2002, International Conference on Chaos, January 3-7, 2002, Baltimore.
- 4) Predictability and Low Dimensional Chaos in Foreign Exchange Rate Returns: Further Evidence 16th Annual International Symposium on Forecasting, June 23-26, 1996, Istanbul, Turkey.
- 5) "A Chaotic Path of Modified Duffing Oscillator" Paper for presentation at the American Physical Society (APS) meeting, Washington D.C. (27- 25 April 1991).
- 6) "Hadronic Decay Rates of Tau Lepton" Contributed paper at the American Physical Society (APS) Meeting Baltimore, MD (1- 4 May 1989)
- 7) "A Unified Treatment of the $\rho(1200)$ and $\rho'(1600)$ " Contributed paper at the Spring Meeting of the American Physical Society Washington D.C. (28 April-1 May 1986)

Conferences on teacher training, education, and outreach

- 1) Results from a West Tennessee Outreach Program:, Invited Talk, Math and Science Education Research Conference, organized by Tennessee Mathematics, Science&Technology Education Center (TMSTEC) at MTSU, Feb. 21-22, 2008
- 2) A Math Science Schools Profile: A Model for Tennessee, Invited Talk, Math and Science Education Research Conference, organized by Tennessee Mathematics, Science &Technology Education Center (TMSTEC) at MTSU, Feb. 22-23, 2007
- 3) Activity Based Summer Science Institute for Middle School Teachers, 26th Annual Conference Unity in Science, Memphis, 2005
- 4) Results from a West Tennessee Outreach Program in Physics/Astronomy The 71st Annual Meeting of the Southeastern Section of the American Physical Society (SESAPS) will held November 11 - 13, 2004 (Thursday - Saturday), in Oak Ridge, Tennessee.
- 5) C. Erkal, Gifted Education; A Mathematics and Science Perspective, Tennessee Association for the Gifted (TAG) conference, October 19, 2002, Chattanooga, Tennessee
- 6) C. Erkal, Understanding Chaos, Michigan Section-American Association of Physics Teachers (AAPT) Spring Meeting, 21 April 1990, Kalamazoo College, Michigan.
- 7) C. Erkal and Andy Sieradzan, The Path of the Bowling Ball, Michigan Section- American Association of

Physics Teachers (AAPT) Spring Meeting, 21 April 1990, Kalamazoo College, Michigan

8) C. Erkal, Challenging Problems of Modern Physics, Michigan Section-American Association of Physics Teachers (AAPT) Fall Meeting, 04 November 1989, Delta College, Michigan

Other conference presentations as co-author but not presenting

the 27th Annual Applied Geography Conference in St. Louis Missouri , 22 October 2004 THE USE OF TELECONNECTION INDICES TO PREDICT TEMPERATURES IN A CLIMATE TRANSITION ZONE, Robert M. Simpson and Cahit Erkal, University of Tennessee at Martin

An Analysis of A Climate Transition Zone: The Case of The Mid-Mississippi River Valley, presented by Dr. Mark Simpson at the AAG (American Association of Geographers) Annual Meeting, New Orleans, March 2003.

A Structured Development of Engineering Curriculum With Course Content Continuum, Chris B. Effiong, Cahit Erkal, University of Tennessee at Martin, and Corey A. Graves Presented by Chris Effiong at the ASEE (American Society of Electrical Engineering) Meeting, April 6-8, 2003.

Time Series Analysis of West Tennessee Climate and its Relationship to Atmospheric Flow Patterns Presented by Dr. Mark Simpson, Assistant Professor of Geography, UT-Martin, at the AAG (American Association of Geographers) Annual Meeting, New York City, March 2001.