

Can Akkoç (Jon Ahk-koch), Ph.D.

Job description: *Helping students learn 'how to learn'*

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Education

- **Ph.D.** in Solid Mechanics, North Carolina State University, Raleigh, North Carolina, 1964.
(**Dissertation topic:** *The Use of Optical Diffraction Phenomena in Studies of Elastic-Plastic Strains Near Sharp Notches.*)
- **MS** in Civil Engineering, Michigan College of Mining and Technology, Houghton, Michigan, 1960.
- **BS** in Civil Engineering, Robert College Engineering School, Istanbul, Turkey, 1958.

Academic Appointments/Affiliations

- **Part-time Faculty**, University of South Alabama, Department of Mathematics and Statistics, Mobile, Alabama, 2009 - 2017.
- **Affiliated Faculty**, Institute of Applied Mathematics, The Middle East Technical University, Ankara, Turkey, 2007- ongoing.
- **Research Associate II**, University of South Alabama, College of Medicine, Department of Comparative Medicine, Mobile, Alabama, 2001-2007(retirement).
- **Mathematics Faculty**, Alabama School of Mathematics and Science, special school for mathematically gifted high school students (10th, 11th, 12th grades), Mobile, Alabama, 1992-2001.
- **Adjunct Faculty**, University of South Alabama, Department of Mathematics and Statistics, Mobile, Alabama, 1990-2009.
- **Adjunct Faculty**, Spring Hill College Mathematics Department, Mobile, Alabama, 1992-2007.
- **Associate Professor of Mathematics**, Spring Hill College Mathematics Department, Mobile, Alabama, 1988-1992.

- **Visiting Lecturer**, Worcester Polytechnic Institute, Department of Mathematical Sciences, Worcester, Massachusetts, 1984-1988.
- **Associate Professor of Mathematics**, Middle East Technical University, Gaziantep, Turkey, 1983-1984. Acting Dean of Engineering, 1983-1984.
- **Assistant Professor of Mathematics**, Middle East Technical University, Ankara/Gaziantep, Turkey, 1967-1983. Administrative ~ Chair, Department of Basic Sciences (mathematics included). Medium of instruction ~ English.

Courses Taught

- **Undergraduate**: Statics, Dynamics, Solid Mechanics, Algebra, Trigonometry, Precalculus, Differential Calculus, Integral Calculus, Multivariable Calculus, Complex Calculus, Sequences and Series, Ordinary Differential Equations, Linear Algebra, Probability Theory and Statistics, Boundary-Value Problems, Finite Mathematics, Computer-Aided Drafting (CAD), Mathematics for Elementary School Teachers, Physical Geology, General Physics Laboratory (undergraduate), Conversational Turkish.
- **Graduate**: Theory of Non-Linear Oscillations, Theory of Linear Elasticity, Partial Differential Equations, Fourier analysis.

Books

- Can Akkoç, *Lectures on Differential Equations*, Ankara, 1973 (English).
- Can Akkoç, *Problems on Differential Equations*, Gaziantep, 1974 (English).
- Can Akkoç, *Lectures on Calculus*, Gaziantep, 1976 (English).
- Can Akkoç, *Partial Differential Equations*, Gaziantep, 1982 (Turkish).
- Can Akkoç, *Linear Vector Spaces*, Gaziantep, 1983 (Turkish).

Publications/Research Papers (refereed)

- Can Akkoç, William A. Sethares, and M. Kemal Karaosmanoğlu, *Experiments on the Relationship between Perde and Seyir in Turkish Makam Music*, **Music Perception**, Vol.32, Issue 4, April 2015, pp.322-343.
- Can Akkoç, Thomas Johnsten, and Ryan Benton, *Multi-layered Vector Spaces for Classifying and Analyzing Biological Sequences*, **ISCA 3rd International Conference on Bioinformatics and Computational Biology (BICoB-2011)**, March 23-25, 2011, New Orleans, Louisiana, USA.
- Barış Bozkurt, Ozan Yarman, M. Kemal Karaosmanoğlu, Can Akkoç, *Weighing Diverse Theoretical Models On Turkish Maqam Music Against Pitch Measurements: A Comparison of Peaks Automatically Derived from Frequency Histograms with Proposed Scale Tones*, **Journal of New Music Research**, Vol.38, Issue 1, March 2009, pp.45-70.

- Can Akkoç, *constructing a Theory of Turkish Music Based on Practice by Traditional Masters*, STATE CONSERVATORY OF TURKISH MUSIC, TECHNICAL UNIVERSITY OF ISTANBUL, Conference (by invitation) on “Issues Surrounding the Conflict between Theory and Practice in Turkish Music and Potential Resolutions”, Istanbul, Turkey, 3-6 March 2008.
 - Can C. Akkoç and Lawrence E. Williams, *Population Modeling for a Captive Squirrel Monkey Colony*, **American Journal of Primatology**, Vol.65, No.3, March 2005, pp.239-254.
 - C. Akkoç, *Non-Deterministic Scales Used in Traditional Turkish Music*, **Journal of New Music Research**, Vol.31, No.4, December 2002, pp.285-293.
 - C. Akkoç, *Characterizing the Set of Pairs of Real Numbers $\{a,b\}$ with the Property $a^b=b^a$ and $a^a=b^b$* , **Alabama Journal of Mathematics**, Vol.22, No.2, Fall 1998, pp.13-21.
- C. Akkoç, J. Klemmack, I. Lai, G. Mitchell, J. Moore, A. Smith, R. Williams, and J. Wu, Alice in Solution Land: A Student Project to Demonstrate the Effect of Singularities on the Solution Space of a First-Order ODE, **Mathematics and Computer Education**, Vol.32, No.3, Fall 1998, pp.270-280.
- Akkoç, C.C., Downey, B., Dunagan, K., Gardberg, A., Lemmermann, P., *On Characteristics of Surfaces Generated by Planar Areas*, **PRIMUS** (Problems, Resources, and Issues in Mathematics Undergraduate Studies), Vol.5, 1995, pp.286-290.
 - Akkoç, C.C., *On the Non-Existence of Periodic, Extensional Oscillations of Flat Plates*, **METU Journal of Pure and Applied Sciences**, Middle East Technical University, Ankara, Turkey, 1975.
 - Douglas, R.A., Akkoç, C.C., Pugh, C.E., *Strain-Field Investigations with Plane Diffraction Gratings*, **Experimental Mechanics Journal of SESA**, July 1965, pp.233-238.

Presentations

- Can Akkoç, *Exploring the Mysteries of Turkish Makam Music*, Stanford University_CCRMA, Palo Alto, California, October 30, 2018
- Can Akkoç, *Teaching-Training Strategies in ESL (English as a Second Language)*, Conference on Teaching and Learning (CoTL), University of South Alabama, Mobile, Alabama, USA, May 7-8, 2018.
- Can Akkoç, *Constructing a Theory of Turkish Music Based on Practice by Traditional Masters*, State Conservatory of Turkish Music, Technical University of Istanbul, conference (by invitation only) on “Issues Surrounding the Conflict between Theory and Practice in Turkish Music and Potential Resolutions”, Istanbul, Türkiye, March 3-6, 2008.
- Can Akkoç, *Türk Musikisinde ‘Seyir’ olayı* (sanal sunum), ‘Türk Müziği Geleneksel Perdelerini Çalabilen Piyano İmalı’ Projesi Sunum Toplantısı, Yıldız Teknik Üniversitesi VEKOM (Vedat Kosal Müzik Araştırmaları Merkezi), İstanbul, Türkiye, 6 Mayıs 2004.
- Kemal Karaosmanoğlu ve Can Akkoç, *Türk Musikisinde İcra-Teori Birliğini Sağlama Yolunda bir Girişim*, (Müz-Dak 10. Sempozyumunda Sunulan Bildiri; T.C. Kültür Bakanlığı yayını) Folklor Derlemeleri ve Müzik Araştırmaları, İstanbul Teknik Üniversitesi Türk Musikisi Devlet Konservatuvarı Mezunları Derneği, İstanbul, Türkiye, 3-5 Aralık 2003.

- Can Akkoç, *Non-Deterministic Sound Structures Observed in Traditional Turkish Music*, presented at the 1999 Annual Conference of the ICTM (International Council for Traditional Music) Study Group *Computer Aided Research*, Krakow, Poland, September 12-19, 1999.
- C. Akkoç and Feridun Özgören, *Non-Deterministic Sound Scales Used in Traditional Turkish Music*, presented at the 4th annual meeting of the ICTM Study Group *Maqam*, İstanbul, Turkey, October 18-24, 1998.
- Akkoç, C.C., Fiddian-Green, R.G., *Temperature Effects on the Diffusion Characteristics of Silicone Tonometers Used in the Critically Ill*, World Congress on Medical Physics and Biomedical Engineering, San Antonio, Texas, USA, Paper No.BEWP3D.4, 1988.
- Akkoç, C.C., Norton, R.L., Lavelle, W.G., *Detection of Laryngeal Pathologies Through Cepstral, Spectral Analysis*, Proceedings of the World Congress on Medical Physics and Biomedical Engineering, San Antonio, Texas, Paper No.BE12M.4, 1988, p.303.
- Norton, R.L., Akkoç, C.C., Lavelle, W.G., *Cepstral Analysis of the Transfer Function of Normal and Pathological Human Larynxes*, IEEE 9th Annual Conference of Engineering in Medicine and Biology, Boston, MA, 1987.
- Richman, M.N., Akkoç, C.C., *Homogeneous Granular Shear Flows of Identical Circular Disks Undergoing Grain Size Reduction*, 20th Midwestern Mechanics Conference, Purdue University, 1987.
- Akkoç, C.C., *Observations on the Sound Structures of Traditional Turkish Music*, Sixth Iowa Acoustic Colloquium, University of Iowa, Iowa City, Iowa, 1987.
- Akkoç, C.C., *Geleneksel Türk Musikisi'nin Deterministik Olmayan Ses Sistemi Üzerinde Gözlemler* (Turkish), First National Symposium of Turkish Music, ITU, İstanbul, Turkey, 1983.
- Akkoç, C.C., *On the Behavior of Solutions of Non-Linear Vibrating Systems*, First International Conference on Mathematics, Arab Bureau of Education for the Gulf States, King Saud University, Riyadh, Saudi Arabia, 1982.
- Akkoç, C.C., *Non-Linear Vibration Problems Viewed as Volterra's Prey-Predator Problem*, Numerical Methods for Nonlinear Problems, Proceedings of the International Conference, University College, Swansea, UK, 1980, pp.189-196.

Grants

- GTE Growth Initiatives for Teachers (GIFT), *Problems in Computational Mathematics*, \$12,000, one year, 1995.

Current Research Interests

- Characterization of mathematical patterns/structures embedded in traditional Turkish music and other musics of the World.
- “Templates” unique to Natural Languages.

Teaching Philosophy-Style

My teaching style, over the course of 60 years of classroom experience in different parts of the world and addressing diverse age groups, has evolved into an *open dialogue* with myself, where fundamental mathematical concepts are *discovered* through continuous *experimental reasoning* and problem solving. During this *loud thinking process* before the class, every effort is made on my part to draw the students into the *act of mathematical discovery*. When the learner is directly involved in the discovery process, mathematics turns into a pleasant personal uplifting *experience*, as opposed to teaching/learning it through 'dogmas'. This approach has worked very well most of the time with young students (15-18) as well as university students and adult learners.

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