

# Dr. Tamás Forgács

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## Education

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**Ph.D. in Mathematics**, University of Illinois at Urbana-Champaign, 2007  
**Master of Science in Mathematics**, University of Iowa, 2001  
**Master of Arts in Economics**, Eastern Illinois University, 1998  
**Bachelor of Arts in Economics**, Corvinus University, Budapest, 1996

## Employment

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<b>Associate Professor of Mathematics - CSU Fresno</b>	<i>Fall 2013 - present</i>
<b>Visiting Associate Professor of Mathematics</b> <b>University of Hawai'i at Manoa</b>	<i>Fall 2013-Spring 2014</i>
<b>Assistant Professor of Mathematics - CSU Fresno</b>	<i>Fall 2007 - Spring 2013</i>
<b>Visiting Professor - Brigham Young University</b>	<i>Summer, 2011</i>
<b>Instructor - Parkland College</b>	<i>Fall 1999-Spring 2000</i>

## Publications and works in preparation

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16. T. Forgács, and K. Tran, Combinatorial consequences of some hyperbolicity results, *in preparation*
15. T. Forgács, A. Piotrowski and K. Tran, The zeros of polynomials with a transcendental generating function, *in preparation*.
14. M. Chasse, T. Forgács and A. Piotrowski, A characterization of polynomially interpolated Legendre multiplier sequences, *submitted*.
13. L. Buck, K. Emmrich and T. Forgács, Sufficient conditions for a linear operator on  $\mathbb{R}[x]$  to be monotone, *submitted*.
12. T. Forgács and K. Tran, On the zeros of polynomials generated by rational functions with a hyperbolic polynomial type denominator, *submitted*.
11. T. Forgács and K. Tran, Polynomials with rational generating functions and real zeros. *J. Math. Anal. Appl.* **443**(2) (2016), pp. 631-651. DOI 10.1016/j.jmaa.2016.05.041
10. G. Csordas, and T. Forgács, Multiplier sequences, classes of generalized Bessel functions and open problems, *J. Math. Anal. Appl.* **433** (2016), pp. 1369-1389. DOI: 10.1016/j.jmaa.2015.08.047
9. T. Forgács and A. Piotrowski, Hermite multiplier sequences and their associated operators, *Constr. Approx.* **42**(3) (2015), pp. 459-479. DOI 10.1007/s00365-015-9277-3
8. T. Forgács, 2015. FURST - A Symbiotic Approach to Research at Primarily Undergraduate Institutions. In: Peterson, M. A., and Rubinstein, Y. A., ed. *Directions for Mathematics Research Experience for Undergraduates*. World Scientific. pp. 17-31.
7. T. Forgács, J. Haley, R. Menke, and C. Simon, The non-existence of cubic Legendre multiplier sequences, *Involve, a Journal of Mathematics*, **7-6** (2014), 773-786. DOI 10.2140/involve.2014.7.773

6. T. Forgács and A. Piotrowski, Multiplier sequences for generalized Laguerre bases, *Rocky Mountain J. of Math.*, **43** (2013) (4), 1141-1159.
5. K. Blakeman, E. Davis, T. Forgács, and K. Urabe, On Legendre Multiplier Sequences, *Missouri J. Math. Sci.*, **24** (2012) (1), 7-23.
4. T. Forgács, J. Tipton, B. Wright, Multiplier Sequences for Simple Sets of Polynomials, *Acta Math. Hungar.*, **137** (2012) (4), 282-295. DOI: 10.1007/s10474-012-0222-7
3. T. Forgács, O. Vega, *Analysis and Algebra*, Cognella Publishing, First edition, 2012. ISBN: 978-1-60927-756-7
2. A. Cseh, and T. Forgács, The effects of Mental Health Parity Legislation on Mental Health Related Hospitalizations, *The Journal of Economics*, **XXXV** (2009), (1), 1-20.
1. T. Forgács, D. Varolin, Sufficient Conditions for Interpolation and Sampling Hypersurfaces in the Bergman Ball, *Int. J. of Math*, **18** (2007), (5), 559-584.

## Grants

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<b>FURST: Faculty and Undergraduate Research Student Teams (\$64,940.00)</b>	2017-18
PI: Organize and administer a multi-institutional grant supporting research at PUIs	
<b>PUMP: Preparing Undergraduates through Mentoring to PhDs (\$11,000.00)</b>	2016-17
PI: mentor two students in an academic year-long research project.	
<b>NSF supplement to SMALL (\$10,000.00)</b>	2015
Co-wrote the grant proposal with Steven J. Miller at Williams College to support the national REU outreach effort to underrepresented minority students in STEM	
<b>NSF REU Site renewal grant (\$219,996.00)</b>	2015-2018
PI: Direct and mentor summer undergraduate research in a 3 year summer research program	
<b>FURST - NSF supplement (\$39,000.00)</b>	2014
PI: Direct a pilot program for faculty-student research teams.	
<b>NSF New REU Site grant (\$198,350.00)</b>	2012-2013
PI: Direct and mentor summer undergraduate research in a 2 year summer research program	
<b>NSF-CURM mini grant (\$19,850.00+\$2,900.00 in matching funds)</b>	2010-2011
PI: Direct and advise a 4 member undergraduate research team	

## Selected Presentations and Conferences

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<b>WM<sup>3</sup> conference</b>	<i>CSU Northridge, October, 2016</i>
<i>Invited panelist - Undergraduate research panel</i>	
<b>Combinatorics and Zeros of analytic functions seminar</b>	<i>Fresno, CA, September 2016</i>
Title: <i>Submodular functions and independent matchings, I &amp; II</i>	
<b>Department seminar</b>	<i>Fresno, CA, April 2016</i>
Title: <i>"Recent progress in the classification of polynomially interpolated Legendre multiplier sequences"</i>	
<b>Department seminar</b>	<i>Fresno, CA, November 2015</i>
Title: <i>"Undergraduate research - the 5 Ws"</i>	
<b>Opportunities in the mathematical sciences: A workshop for emerging scholars</b>	<i>UC Irvine, April 2015</i>
<i>Invited panelist - Undergraduate research panel</i>	
<b>AMS-MAA Joint Meeting</b>	<i>San Antonio, TX, January 2015</i>
Title: <i>"Classical multiplier sequences: a special class, continuous transformations, and connections to special functions"</i>	
<b>AMS-MAA Joint Meeting</b>	<i>San Antonio, TX, January 2015</i>
Title: <i>"Implementing modules - a case study"</i>	
<b>PUMP Summer Program Colloquium</b>	<i>Cal Poly Pomona, July, 2014</i>
Title: <i>"Polynomials, derivatives and location of zeros"</i>	

**Workshop on Revitalizing Complex Analysis** Westmont College, Santa Barbara, June, 2014  
Title: *“Complex Analysis and REUs”*

**UH Function Theory seminar** Honolulu, HI, February, 2014  
Title: *“The non-existence of cubic Legendre multiplier sequences, Part I & II”*

**AMS-MAA Joint Meeting** Baltimore, MD, January 2014  
Title: *“Multiplier sequences of the second kind”*

**UH Graduate Complex Analysis seminar** Honolulu, HI, October 2013  
Title: *“Hermite Diagonal operators, Part I, II & III”*

**Colloquium - University of Hawai‘i** Honolulu, HI, October, 2013  
Title: *“Parallel approaches in the theory of multiplier sequences”*

**Mt. Holyoke: New Directions for REUs** East Hadley, MA, June, 2013  
Title: *“FURST - a symbiotic approach to research”*

**Department of Mathematics Seminar** Fresno, CA, April 12, 2013  
Title: *“Classification of Laguerre multiplier sequences, Part II”*

**Department of Mathematics Seminar** Fresno, CA, April 5, 2013  
Title: *“Classification of Laguerre multiplier sequences, Part I”*

**AMS-MAA Joint Meeting** San Diego, CA, January 2013  
Title: *“Coefficient Polynomials of Hermite Diagonal Operators”*

**TURMS conference** Chicago, IL, October 27, 2012  
Title: *“Challenges in developing and sustaining an internalized undergraduate research program in mathematics - the Fresno State experience”*

**Department of Mathematics Seminar** Fresno, CA, October 5, 2012  
Title: *“A new characterization of Hermite multiplier sequences, Part II”*

**Department of Mathematics Seminar** Fresno, CA, September 21, 2012  
Title: *“A new characterization of Hermite multiplier sequences, Part I”*

**Department of Mathematics Colloquium** Fresno, CA, September 21, 2012  
Title: *“Linear Operators on  $R[x]$ ”*

**AMS-MAA Joint Meeting** Boston, MA, January 2012  
Title: *“Multiplier sequences for simple sets of polynomials”*

**Summer REU talk** Provo, UT, June 15, 2011  
Title: *“Zeros of polynomials”*

**Department of Mathematics Colloquium** Fresno, CA, February 25, 2011  
Title: *“O zeros where art thou?”*

**Department of Mathematics Seminar** Fresno, CA, February 14, 2011  
Title: *“On Hermite diagonal operators”*

**Southern Economic Association 80<sup>th</sup> Annual Meeting** Atlanta, GA, November 22, 2010  
Title: *“On the  $n$ -person chicken game”*

**Department of Mathematics Seminar** Fresno, CA, April 29, 2010  
Title: *“Rigor in the chicken game - some proofs and ideas”*

**AMS-MAA Joint Meeting** San Francisco, CA, January 13-16, 2010  
Title: *“Addiction and Treatment in a rational framework - can lowering health care costs have adverse effects?”*

**Southern Economic Association 79<sup>th</sup> Annual Meeting** San Antonio, TX., November 21, 2009  
Title: *“Urbanization and the Cultural Costs of International Trade”*

**Missouri Valley Economic Association 46<sup>th</sup> Annual Meeting** Kansas City, October, 2009  
Title: *“The More the Merrier? The Effects of Mental Health Parity Legislation on the Availability and Quality of Mental Health Treatment: a Game Theoretic Approach”*

**Department of Mathematics Seminar** Fresno, CA, April 2, 2009  
Title: *“An Inclusion Theorem for Multiplier Sequences”*

**Regional Conference on Excellence in Teaching and Learning** Fresno, CA, March 13, 2009  
Title: *“Does small group independent problem solving solve any problems? The case of Math 171 Intermediate Mathematical Analysis”*

**Southern Economic Association 78<sup>th</sup> Annual Meeting** Washington D.C., November 21, 2008  
Title: *“A Rational Addiction-Treatment Model with Interacting Stocks”*

**Department of Mathematics Seminar** *Fresno, CA, November 13, 2008*  
 Title: “Extrema of functionals, the Euler-Lagrange equation and an application to economics”  
**Missouri Valley Economic Association 45<sup>th</sup> Annual Meeting** *St. Louis, October, 2008*  
 Title: “Aspects of Modeling Cultural Barriers in International Trade”  
**Department of Mathematics Seminar** *Fresno, CA, April 3, 2008*  
 Title: “Laguerre multiplier sequences - towards a classification theorem. Part I.”  
**Missouri Valley Economic Association 44<sup>th</sup> Annual Meeting** *Kansas City, October, 2007*  
 Title: “The effects of parity legislation on mental health care utilization”  
**Department of Mathematics Seminar** *Fresno, CA, October 4, 2007*  
 Title: “A primer on rational addiction”  
**Department of Mathematics Seminar** *Fresno, CA, September 27, 2007*  
 Title: “Notions of uniform flatness”

## Students

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### Undergraduate Research

Alexandra Leon and Summer Al-Hamdani *PUMP, Fall 2016-Spring 2017*

Leah Buck, Kelly Emmrich, Christian Hokaj, and  
 Kenny Plante *Fresno State REU, June-August, 2016*  
 Molly Corcoran *Independent research supervision, Spring, 2015*

James Haley, Rebecca Menke, Carlee Simon, and  
 Fernando Quintino *Fresno State REU, June-August, 2013*

Hagop Karakazian *Independent research supervision, Spring 2012-Fall 2012*

Kelly Blakeman, Emily Davis and  
 Katherine Urabe *Brigham Young University REU, June-August, 2011*

Mario Banuelos, Michelle Hoshiko  
 James Tipton, Benjamin Wright *CURM Undergraduate Research Group supervision,  
 Fall 2010-Spring 2011*

Whitney Walker *Senior Project supervision, Fall 2009*

Michelle Hoshiko, Luciana Montalvo *Summer REU, 2009*

Iliana Perez *Senior Project supervision, Fall 2008*

### Graduate Research

Jeffrey C. Park *Masters Thesis supervision, Spring 2016*  
 David Heywood *Masters Thesis supervision, Spring 2015*  
 Kristi Rieg *Masters Project supervision, Spring 2011*  
 Danielle Alberti *Masters Project supervision, Spring 2010*  
 Luke Denton *Masters Project supervision, Spring 2009*

## Professional Development

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**Workshop on Revitalizing Complex Analysis** *Santa Barbara, CA, June, 2014*  
**Mt. Holyoke conference on REU directions** *East Hadley, MA, June, 2013*  
**Trends in Undergraduate Research (TURMS) conference** *Chicago, IL, October, 2012*  
**Mentoring Minority Students in REUs** *PCMI, Park City, UT July, 2012*  
**Experiencing Mathematics & Statistics Workshop -  
 Teaching with Technology** *Napa, September, 2010*  
**CURM Faculty workshop on**

mentoring undergraduate research	<i>Draper, UT June, 2010</i>
CSALT - Conference on Active Learning	<i>March 2, 2010</i>
CETL - Regional Conference on Excellence in Teaching and Learning	<i>March 13, 2009</i>
CETL workshop series (6 workshops)	<i>Fall 2008-Spring 2009</i>
Service Learning Mini Grant Workshops	<i>Fall 2008</i>

## Professional Service

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<b>Referee - Computational Methods and Function Theory</b>	<i>August, 2016</i>
Refereed a journal article.	
<b>Referee - Rose-Hulman Undergraduate Mathematics Journal</b>	<i>March, 2016</i>
Refereed a journal article.	
<b>AMS-MAA Joint Meetings</b>	<i>Seattle, WA, January, 2016</i>
Session organizer - Research Conducted by Undergraduates I-IV	
Session organizer - Distribution of zeros of entire functions.	
<b>Mathematical Biology Search Committee</b>	<i>Fall '15-Spring '16</i>
Search committee member (department level)	
<b>AMS Fall Sectional Meeting</b>	<i>October 24-25, Fullerton, CA</i>
Session organizer for Research Conducted by Early Career Graduate students.	
<b>Referee - Bollettino dell'Unione Matematica Italiana</b>	<i>October, 2015</i>
Refereed a journal article.	
<b>Referee - PRIMUS</b>	<i>August, 2015</i>
Refereed a journal article.	
<b>REU leadership administrator</b>	<i>2012-present</i>
I maintain and moderate a listserv for all REU PIs in the US	
<b>AVP for Enrollment Management Search Committee</b>	<i>Fresno, CA, Fall 2014-Spring 2015</i>
Search committee member (university level)	
<b>Analysis Search Committee</b>	<i>Fresno, CA, Fall 2014-Spring 2015</i>
Search committee member (department level)	
<b>AMS-MAA Joint Meetings</b>	<i>San Antonio, TX, January, 2015</i>
Session organizer - Research Conducted by Undergraduates I-IV	
Session chair - Advances in Analysis	
<b>Referee - Proceedings of the New Directions in REUs conference</b>	<i>August, 2014</i>
Refereed a book chapter.	
<b>Referee - Computational Methods and Function Theory</b>	<i>February, 2014</i>
Refereed a journal article.	
<b>AMS-MAA Joint Meetings</b>	<i>Baltimore, MD, January 2014</i>
Session Chair (2 different sessions)	
<b>Referee - American Mathematical Monthly</b>	<i>December, 2013</i>
Refereed a journal article.	
<b>National Science Foundation Reviewer</b>	<i>November, 2013</i>
Reviewed a proposal submitted to the NSF.	
<b>Referee - Constructive Approximation</b>	<i>March-April, 2013</i>
Refereed a journal article for CA	
<b>National Science Foundation Panelist</b>	<i>Washington, D.C., November 5-7, 2012</i>
Primary reviewer for 10 grant proposals	
<b>Young Mathematicians Conference</b>	<i>Colombus, OH, July, 2012</i>
Abstract reviewer for the conference	
<b>Pacific Coast Undergraduate Mathematics Conference</b>	<i>March 13, 2012</i>
Student session moderator	
<b>AMS-MAA Joint Meetings</b>	<i>Boston, MA, January 2012</i>
Student Poster Session Judge	
<b>Pacific Coast Undergraduate Mathematics Conference</b>	<i>March 13, 2011</i>

Student session moderator  
**AMS-MAA Joint Meetings** *New Orleans, LA, January 2011*  
 Student Poster Session Judge  
**Southern Economic Association Annual meeting** *November 21-23 2010*  
 Discussant: Christopher Garmon., “Major League Baseball’s Rule 4 Draft”  
**Pacific Coast Undergraduate Mathematics Conference** *March 13, 2010*  
 Student session moderator  
**AMS-MAA Joint Meetings** *San Francisco, CA, January 2010*  
 Student Poster Session Judge  
**Southern Economic Association Annual meeting** *November 21-23 2009*  
 Discussant: Joshua Dennis Hall., “The Rate of Technological Progress, Effective Human Capital and the Dynamics of Income Inequality: An Empirical Analysis”  
**Missouri Valley Economic Association 46<sup>th</sup> annual meeting** *October 22-24 2009*  
 Discussant: Kent Eliasson et al., “All in the Family: Self Selection and Migration by Couples”  
**Southern Economic Association Annual meeting** *November 20-23 2008*  
 Discussant: Lisa A. Delgado., “Nash and correlated equilibria in the market for skills”  
**Missouri Valley Economic Association 45<sup>th</sup> annual meeting** *October 23-25 2008*  
 Discussant: Valerica Vlad, “Terms of Trade and Environment in a North-South Model with Cross-border Pollution”  
**Missouri Valley Economic Association 44<sup>th</sup> annual meeting** *October 22-24 2007*  
 Discussant: Wang, X., “Tax competition and economic integration with investor lock-in”

## Community Service

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**Youth Soccer League Coach** *August 2014 -June, 2015*  
**Smittcamp Family Honors College application reader** *Winter, 2008, 2010*  
**Wheels of Support Project** *Fall 2007 to present*  
 Founder

## Professional Memberships

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American Mathematical Society *2005 - present*  
 Mathematical Association of America *2008 - 2011*  
 Southern Economic Association *2008 - 2010*  
 Missouri Valley Economic Association *2007 - 2009*

## Administration and Leadership

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**Research Subcommittee of the APP** *Fall 2016 to present*  
 Chair  
**Fresno State Academic Senate** *Fall 2014 to present*  
 Department Senator  
**Department Undergraduate Research Committee** *Spring 2012 to present*  
 Chair  
**CSUF Mathematics Club** *Fall 2008 to Spring 2015*  
 Advisor  
**Departmental Colloquium Series** *Fall 2008 to Spring 2015*  
 Chair  
**CSUF Wheels of Support Club** *Fall 2008 to 2010*  
 Advisor

## Awards and Honors

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**Faculty Professional Development Award** *AY 2016-17*

I was awarded \$1200.00 to support my participation at the joint AMS-MAA meetings in Atlanta, GA

**Faculty Creative Activity Award** *Fall 2016*

I was awarded 3 WTU assigned time to complete and submit a research paper for publication co-authored with visiting professor A. Piotrowski

**Faculty Creative Activity Award** *Summer 2016*

I was awarded \$5,000.00 to support my writing and submitting a research paper for publication

**Faculty Creative Activity Award** *2015*

I was awarded \$5,000.00 to support my writing a grant in collaboration with H. Soto-Johnson at NCU on improving STEM education

**Faculty Professional Development Award** *AY 2015-16*

I was awarded \$1200.00 to support my participation at the joint AMS-MAA meetings in Seattle, WA

**Outstanding publication in the Department of Mathematics** *2014*

The department voted my paper in *Involve* to receive this honor.

**Faculty Professional Development Award** *Fall 2014*

I was awarded \$1200.00 to support my participation at the joint AMS-MAA meetings in San Antonio, TX

**College Scholarly and Creative Activity Award** *Fall, 2014*

3 WTU release time awarded for writing scholarly papers during the fall of 2014

**College Scholarly and Creative Activity Award** *Spring, 2014*

\$5,000.00 awarded for the writing of two grants during the summer of 2014

**Faculty Performance Award** *Fall 2013*

I was awarded \$999.00 to support my participation at the joint AMS-MAA meetings in Baltimore, MD

**Outstanding publication in the Department of Mathematics** *2012*

The department voted my paper in *Acta Math. Hung.* to receive this honor.

**Nominee for the Provost's Award for Promising New Faculty** *Spring, 2012*

I was nominated for this award by the chair of the department of Mathematics.

**Faculty Performance Award** *Fall 2011*

I was awarded \$999.00 to support my participation at the joint AMS-MAA meetings in Boston, MA

**College Scholarly and Creative Activity Award** *Fall 2011*

3 WTU's awarded for the Spring of 2012 at California State University, Fresno

**Invited Professor** *June-August, 2011*

Brigham Young University summer REU

**Outstanding publication in the Department of Mathematics** *2010*

The department voted my book with O. Vega to receive this honor.

**Faculty Performance Award** *Fall 2010*

I was awarded \$999.00 to support my participation at the 80<sup>th</sup> annual meeting of the SEA.

**Provost Faculty Scholarship Support** *Spring 2010*

I was awarded 3 WTUs to support scholarly advancement

**Faculty Performance Award** *Fall 2009*

I was awarded \$999.00 to support my participation at the 46<sup>th</sup> annual meeting of the MVEA.

**Faculty Performance Award** *Fall 2008*

I was awarded \$900 to support my participation at the 45<sup>th</sup> annual meeting of the MVEA.

**International Faculty Development Award -CSUF** *Fall 2007-Summer 2008*

I was awarded \$2500 from the Office of International Programs to support my studies of Spanish and writing at the University of Alicante.

**Graduate Faculty/Program Enhancement Award** *Spring 2008*

I was awarded \$3000 to enhance the instructional material and standardize the syllabus for one of our graduate courses at California State University, Fresno

**Faculty Performance Award** *Fall 2007*

I was awarded \$1200 to support my participation at the 44<sup>th</sup> annual meeting of the MVEA.

**College Scholarly and Creative Activity Award** *Fall 2007*

3 WTU's awarded for the 2008-2009 academic year at California State University, Fresno

**International Activities Award**

*2007-2008*

I was awarded \$440 to support my studies in Alicante, Spain

**Global Ambassador Award**

*Fall 2007*

An award given in recognition of outstanding alumni of Eastern Illinois University