

Curriculum Vitae

Kwang Cheul Shin

February, 2024

ACADEMIC ACHIVEMENT

<u>Degree</u>	<u>School</u>	<u>Years</u>
B.S., Mathematics	Chonnam National University, Korea	1985 – 1992
M.S., Mathematics	Chonnam National University, Korea	1993 -- 1995
Ph.D., Mathematics	University of Illinois, Champaign, IL	1998 – 2002

M. S. Thesis: Submanifolds with constant mean curvature vector fields, February 1995.

Ph.D. Dissertation: On some Schrödinger eigenvalue problems from mathematical physics, May 2002.

Employment History

<u>Date</u>	<u>Title</u>	<u>Institution and Department</u>
2011 -- present	Associate Professor	University of West Georgia, Mathematics
2006 -- 2011	Assistant Professor	University of West Georgia, Mathematics
2002 -- 2006	Postdoctoral Fellow	University of Missouri, Mathematics
1998 -- 2001	Teaching Assistant	University of Illinois, Mathematics
1997 -- 1998	Teaching Assistant	Wayne State University, Mathematics

Honors and Awards:

1. Travel Award to participate Workshop on Mathematical aspects of physics with non-self-adjoint operators, the American Institute of Mathematics, San Jose, CA, June 8 – June 13, 2015.
2. Research Visit, University of Illinois, Urbana-Champaign, April 6 – April 10, 2015.
3. Successful teaching of UWG Honors Program: Math 1113, Fall 2008.
4. Travel Award for attending "Spectral Theory and Mathematical Physics" Conference in Honor of Barry Simon's 60th Birthday, Pasadena, California, March 2006.
5. Travel Award to participate Workshop on Low eigenvalues of Laplace and Schrodinger operators, the American Institute of Mathematics, Palo Alto, CA, May 22 – May 26, 2006.
6. Travel Award for attending ``Workshop on Spectral Theory of Schrödinger Operators," Montréal, Canada, July 2004.

7. University Fellowship, University of Illinois, Spring 2002.
8. Listed as an excellent teacher by students, University of Illinois, Spring 2001.
9. Hohn-Nash Award in Mathematics, University of Illinois, which is given "in recognition of outstanding scholarship in applied mathematics", 2001.
10. Summer Research Assistantship, University of Illinois, 1999-2001.
11. Paul Catlin Endowed Mathematics Scholarship, Wayne State University, 1997.

PROFESSIONAL GROWTH

Publications:

1. S. H. Ahn, D. S. Kim, and **K. C. Shin**, Submanifolds with constant mean curvature vector fields, *Honam Mathematical Journal*, 17 (1): 49-55, 1995.
2. **K. C. Shin**, On the Eigenproblems of PT -Symmetric Oscillators, *Journal of Mathematical Physics*, 42 (6): 2513-2530, 2001.
3. **K. C. Shin**, On the Reality of the Eigenvalues for a Class of PT -Symmetric Oscillators, *Communications in Mathematical Physics*, 229 (3): 543-564, 2002.
4. **K. C. Shin**, New polynomials P for which $f''+P(z)f=0$ has a solution with almost all real zeros, *Annales Academiæ Scientiarum Fennicæ Mathematica*, 27: 491-498, 2002.
5. **Kwang C. Shin**, On half-line spectra for a class of non-self-adjoint Hill operators, *Mathematische Nachrichten*, 261-262: 171-175, 2003.
6. **Kwang C. Shin**, Trace Formulas for Non-Self-Adjoint Periodic Schrödinger Operators and some Applications, *Journal of Mathematical Analysis and Applications*, 299(1): 19-39, 2004.
7. **Kwang C. Shin**, On the shape of spectra for non-self-adjoint periodic Schrödinger operators, *Journal of Physics A: Mathematical and General*, 37: 8287-8291, 2004.
8. **Kwang C. Shin**, Eigenvalues of PT -symmetric oscillators with polynomial potentials, *Journal of Physics A: Mathematical and General*, 38: 6147-6166, 2005.
9. **Kwang C. Shin**, The potential $(iz)^m$ generates real eigenvalues only, under symmetric rapid decay conditions, *Journal of Mathematical Physics*, 46: 082110 (17 pages), 2005.

10. **Kwang C. Shin**, Asymptotics of eigenvalues of non-self adjoint Schrödinger operators on a half-line, *Computational Methods and Function Theory*, 10 (1): 111–133, 2010.
11. **Kwang C. Shin**, Anharmonic Oscillators with Infinitely Many Real Eigenvalues and \mathcal{PT} -Symmetry, *Symmetry, Integrability and Geometry: Methods and Applications*, 6: 015, 9 pages, 2010.
12. **Kwang C. Shin**, Anharmonic Oscillators in the Complex Plane, \mathcal{PT} -Symmetry, and Real Eigenvalues, *Potential Analysis*, 35(2) 145–174, 2011.

Reviewed Conference Proceedings:

13. **Kwang C. Shin**, Reality Of Eigenvalues of Anharmonic Oscillators in the Complex Plane,

Preprints

14. **Kwang C. Shin**, All cubic and quartic polynomials for which $f'+P(z)f=0$ has a solution with almost all real zeros.

Presentations:

1. Analysis and Applied Math Seminar, Kennesaw State University, November 4, 2015.
2. EEC Symposium in UKC 2015, Atlanta, Georgia, July 30 – August 1, 2015
3. AIM Wrokshop on Mathematical aspects of physics with non-self-adjoint operators, June 6-13, 2015.
4. A Necessary and Sufficient Condition for Reality of Eigenvalues of Anharmonic Oscillators in the Complex Plane, AMS Sectional Meeting, Las Vegas, Nevada, April 19, 2015
5. A Necessary and Sufficient Condition for Reality of Eigenvalues of Anharmonic Oscillators in the Complex Plane, Differential Equation Seminar, University of Illinois, Champaign, Illinois, April 7, 2015
6. All cubic and quartic polynomials P for which $f'+P(z)f=0$ has a solution with infinitely many real zeros and at most finitely many non-real zeros., Special Session on Complex Analysis and Potential Theory, AMS Sectional Meeting, Lexington, Kentucky, March 2010. (Invited conference)
7. Anharmonic Oscillators in the Complex Plane., MIAMI-2009, conference on elementary particles, astrophysics, and cosmology, Fort Lauderdale, Florida, December 2009. (Invited conference)
8. Amharmonic Oscillators in the complex plane and Problem 2.71 of Hayman's list, 1 week Research Visit, University of Illinois, Champaign, Illinois, May 2009.

9. Asymptotic distribution of eigenvalues of non-self-adjoint Schrödinger operators with polynomial potentials., Special Session on Complex Dynamics and Value Distribution, AMS Sectional Meeting, Champaign, Illinois, March 2009. (Invited conference)
10. Eigenvalues of Schrödinger operators with a polynomial potential: Asymptotics of eigenvalues., PDE Seminar, University of Missouri, Missouri, January 2006.
11. Eigenvalues of non-self-adjoint Schrödinger operators with polynomial potentials, Special Session on Value Distribution Theory in Classical and p-Adic Function Theory, AMS and MAA Joint Meeting, San Antonio, Texas, January 2006. (Invited conference)
12. The Schrödinger type eigenvalue problem in the complex plane with a polynomial potential: Asymptotics of eigenvalues, Georgia State University, June 2005.
13. Asymptotic expansions of the eigenvalues of anharmonic oscillators., Special Session on Spectral Problems of Differential Operators, AMS Sectional Meeting, Evanston, Illinois, October 2004. (Invited conference)
14. The Schrödinger type eigenvalue problem in the complex plane with a polynomial potential: Asymptotics of eigenvalues., Analysis Seminar, University of Illinois, Illinois, October 2004.
15. Some Schrödinger eigenvalue problems from mathematical physics, Chonnam National University, South Korea, June 2004.
16. Reality of eigenvalues of some "non-standard" Schrödinger operators, Yonsei University, South Korea, June 2004.
17. Reality of eigenvalues for certain non-self-adjoint \mathcal{PT} -symmetric oscillators., Analysis Seminar, Washington University, St. Louis, Missouri, March 2004.
18. Trace formulas for non-self-adjoint periodic Schrödinger operators and some applications, Special Session on Value Distribution Theory in Classical and p-Adic Function Theory, AMS and MAA Joint Meeting, Phoenix, Arizona, January 2004. (Invited conference)
19. On half-line spectra for a class of non-self-adjoint Hill operators, PDE Seminar, University of Missouri, September 2003.
20. Floquet and spectral theory for periodic Schrödinger operators, Applied Mathematics Seminar (Math 488), University of Missouri, May 2003.
21. On the reality of the eigenvalues for a class of \mathcal{PT} -symmetric oscillators, Analysis Seminar, University of Missouri, September 2002.
22. On the eigenproblems of \mathcal{PT} -symmetric oscillators., Special Session on Functional Equations, AMS and MAA Joint Meeting, New Orleans, Louisiana, January 2001. (Invited conference)
23. Research talks at UWG.

Refree for Journals:

Refereed papers for 6 scholarly journals:

- Computational Methods and Function Theory

- Journal Of Mathematical Physics
- Journal of Physics A: Mathematical and Theoretical
- Czechoslovak Journal of Physics
- Symmetry, Integrability and Geometry: Methods and Applications (SIGMA)
- Georgia Journal of Science.

Conferences and workshops attended with no talks:

1. CAvid, monthly online talk series in Complex Analysis since Summer 2020
2. Bender Fest, March, Washington University, St. Louis, MO, March 2009.
3. STEM Institute, University of West Georgia, February 2010.
4. Workshop on Low eigenvalues of Laplace and Schrödinger operators, American Institute of Mathematics, Palo Alto, CA., May 2006.
5. Spectral Theory and Mathematical Physics, Conference in Honor of Barry Simon's 60th Birthday, Pasadena, California, March 2006.
6. Workshop on Spectral Theory of Schrödinger Operators, Centre de Recherches Mathématiques, Montréal, Canada, July 2004.

SERVICE TO INSTITUTION

Committee Memberships:

University and College Committees:

- (University) Faculty Senate 2022 -- 2025
- (University) Grade Appeals Subcommittee, 2015 – present
- (University) Faculty Senate Undergraduate Programs Committee, 2022 -- 2025
- (University) Committee on Graduate Studies, 2010 – 2011
- (University) Technology Fee Committee, 2010 – 2013
- (College) Graduate Advisory Committee, 2011 -- 2016
- (College) Arts and Sciences Dean's Faculty Advisory Committee, 2010, 2012- 2014
- (College) COSM Advisory Committee, 2012 – 2014
- (College) COSM Tenure and Promotion Committee, 2013 – 2014 (member), 2014--2015 (chair).

Mathematics Department Committee:

- Director Of Undergraduate Studies, Fall 2016 – Spring 2017
- Undergraduate Curriculum Committee, 2016--present
- Tenure Committee, 2011—present

- Graduate Committee, Chair, 2010 – 2016, Member 2016 -- 2021
- Director of Graduate Studies, 2010 – March 2016
- Website Committee, 2006 – 2016
- Seminar/Colloquium Committee, 2006 – 2009
- Student/Faculty Activity Committee, 2006 -- 2011
- Technology Committee, Chair, 2007 -- 2010, Member, 2010 -- 2021
- Scholarship Committee, Chair, 2008 -- 2010, Member, 2011—Spring 2023
- Mathematics Search Committee, 2008 – 2009
- Ad Hoc Committee on College Algebra, 2008 – 2009
- C.A.M.S Committee, 2011-- 2018
- Freshman Math Committee, 2011 – 2016
- Visiting Professor Search Committee, Spring 2012
- Applied Mathematics Search Committee, Chair, Fall 2012-Spring 2013
- Instructor Search Committee, Spring 2012

Counseling experience:

- Freshmen Orientation, Summer 2010, Summer 2012, 2013, 2014, 2015
- Advising mathematics major students and transfer students, 2006 – 2011
- Senior Project: Leslie Shields, 2017
- Advising all graduate students, 2010 – 2016
- Advising undergraduate students

Other Service:

- Tech Fee proposal for Enhancement of Math Tutoring Center, \$25,950.00, partially funded, 2014. UWise Mini-grant for online tutoring center, \$7,500 2011 -- 2012.
- Tech Fee proposal for Enhancement of Math Tutoring Center, \$25,950.00, fully funded, 2010.
- Tech Fee proposal for Laptop computers with Tablet for Proof, \$14,000.00, partially funded (\$4,000.00), 2010.
- Participation in Math Day almost every year.
- Independent studies for several students.