

CURRICULUM VITAE TIEN-TSAN SHIEH

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RESEARCH INTERESTS

- Calculus of Variations
- Partial Differential Equations
- Superconductivity
- Geometric Measure Theory

EDUCATION

- **Ph.D. in Mathematics, Indiana University, June 2007**
Thesis advisor: Peter Sternberg.
- **B.S. in Mathematics, National Taiwan University, June 1996**

EMPLOYMENT

Sept.10 - present : Post-doctoral Fellowship, Institute of Mathematics, Academia Sinica, Taipei
Aug. 07 - Aug. 10 : Visiting Asistant Professor, Department of Mathematics, University of Arizona
Aug. 00 - June 07 : Associate Instructor, Mathematics Department, Indiana University
July 98 - June 00: Research Assistant, Mathematics Institute, Academic Sinica, Taiwan

AWARD

Spring 2000 **James P. Williams Memorial Award** — Outstanding first year graduate study

PRESENTATIONS

- July 2011 **BEC seminar, National Taiwan University, Taipei**
Introduction to the second quantization.
- June 2011 **BEC seminar, National Taiwan University, Taipei**
Introduction to superconductivity.
- June 2011 **Department Colloquium, National Chiao-Tung University, Hsinchu**
Onset problem of superconductivity.
- June 2011 **Department Colloquium, National Chung-Hsing University, Taichung**
Onset problem of superconductivity.
- May 2011 **Department Colloquium, National Taiwan Normal University, Taipei**
Onset problem of superconductivity.
- April 2011 **Department Colloquium, National University of Kaohsiung, Kaohsiung**
Onset problem of superconductivity.
- March 2011 **Department Colloquium, National Taiwan University, Taipei**
Onset problem of superconductivity.
- March 2011 **Department Colloquium, Fu-Jen University, Taipei**
Onset problem of superconductivity.
- Feb. 2011 **Department Colloquium, National Cheng Kung University, Tainan**

- Jan. 2011 *Onset problem of superconductivity.*
Department Colloquium, National Chiao-Tung University, Hsinchu
Pattern Formation.
- Fall 2010 **Analysis Seminar, Academia Sinica, Taipei**
The Ginzburg-Landau Theory and Superconductivity
- March 2009 **Analysis and Application Seminar, UA, Tucson**
Some cases study on the variational problems of the pattern formation
- July 2008 **NCTS Seminar in PDE, NCTS, Taiwan**
 Γ -limit of Ginzburg-Landau energy in a thin domain with a large magnetic field.
- July 2008 **PDE Seminar, National Taiwan University, Taiwan**
A thin loop in a large magnetic field.
- July 2008 **Department Colloquium, National Central University, Taiwan**
A thin loop in a large magnetic field.
- May 2008 **2008 CNA Summer School, Pittsburgh, PA**
 Γ -limit of Ginzburg-Landau energy in a thin domain with a large magnetic field.
- April 2008 **New Mexico Analysis Seminar, NM, Las Cruces**
 Γ -limit of Ginzburg-Landau energy in a thin domain with a large magnetic field.
- Oct. 2007 **AMS Western Section Meeting, Albuquerque, NM**
 Γ -limit of Ginzburg-Landau energy in a thin domain with a large magnetic field.
- Oct. 2007 **Department Colloquium, New Mexico State University, Las Cruces**
The onset problem for a thin superconducting loop in a large magnetic field.
- Sept. 2007 **Analysis and Application Seminar, UA, Tucson**
The onset problem for a thin superconducting loop in a large magnetic field.
- Jan. 2007 **AMS Joint Mathematics Meeting, New Orleans.**
The onset problem for a thin superconducting loop in a large magnetic field.
- Sept. 2006. **PDE Seminar, IU Bloomington.**
A thin superconducting loop in a large magnetic field.
- July 2006. **Workshop on Singularities in PDE and the Calculus of Variations, Montreal**
The onset problem of a thin superconducting loop in a large magnetic field. Poster
- July 2006. **SIAM Conference on Analysis of Partial Differential Equations, Boston.**
The onset problem of a thin superconducting loop in a large magnetic field. Poster
- March 2000. **Geometric Measure Theory Seminar, Academic Sinica Taipei**
Structure of Singularities.

PUBLICATIONS

- Tien-Tsan Shieh and Peter Sternberg, *The onset problem of a thin superconducting loop in a large magnetic field*, *Asymp. Anal.* **48**, no. 1-2, 55-76 (2006).
- Tien-Tsan Shieh, Γ -limit of the Ginzburg-Landau energy of a thin superconducting loop for a large magnetic field, *Proceedings of the Royal Society of Edinburgh: Section A.*, **138A**, 1137-1161 (2008).
- Nick Ercolani, Tien-Tsan Shieh and Shankar Venkataramani, *Point defects as energy minimizers over multi-valued functions*, in preparation.
- Tien-Tsan Shieh, *Multiple-valued Sobolev spaces $W^{2,p}$ in the sense of Almgren*, in preparation
- Tien-Tsan Shieh, *Classification of the phase transition from the normal state to superconducting state in a thin superconductor*, in preparation

CONFERENCES AND WORKSHOPS ATTENDED

- May 2008 **2008 CNA Summer School, Pittsburgh, PA**
- May 2008 **SIAM Mathematic Aspects of Materials Science, Philadelphia, PA**

April 2008 **The Riviere-Fabes Symposium on Analysis and PDE, Univ. of Minnesota**
 April 2008 **New Mexico Analysis Seminar, NM, Las Cruces**
 Dec. 2007 **SIAM Conference on Analysis of Partial Differential Equations, Mesa, AZ**
 Oct. 2007 **AMS Western Section Meeting, Albuquerque, NM**
 May 2007 **The 3rd Symposium on Analysis & PDEs, Purdue University**
 Jan 2007 **AMS Jiont Meeting, New Orleans**
 Oct 2006. **A Conference on Applied Analysis, Carnegie Mellon University.**
 July 2006. **Workshop on Singularities in PDE and the Calculus of Variations, Montreal**
 July 2006. **SIAM Conference on Analysis of Partial Differential Equations, Boston.**
 Jan 2006. **Joint Mathematics Meeting, San Antonio, TX.**
 June 2005. **Effective Theories for Materials and Macromolecules, IMA, Minnesota**
 Oct 2004. **IMA Workshop on Singularities in Materials, University of Minnesota**
 Sept 2004. **IMA Workshop on Modeling of Soft Matter, University of Minnesota**
 Sept 2004. **IMA Tutorial on Mathematics of Materials, University of Minnesota**
 June 2003 **The 1st Symposium on Analysis and PDEs, Purdue University**
 April 2003. **AMS Sectional Meeting, Bloomington**
 April 2001. **Midwest Partial Differential Equations Seminar, Indiana University**

RESEARCH VISIT

Sept 2004 - June 2005: **Mathematics of Materials and Macromolecules: Multiple Scales, Disorder, and Singularities**, IMA, University of Minnesota

TEACHING EXPERIENCE

Instructor - University of Arizona *Fall 2008*

Duties included lecturing, writing and grading tests and quizzes, and grading homework.

Math 125	Calculus I	Fall 2008	<i>Instructor</i>
Math 129	Calculus II	Spring 2009	<i>Instructor</i>
Math 254	Ordinary Differential Equations	Summer I 2009	<i>Instructor</i>
Math 125	Calculus I	Fall 2009	<i>Instructor</i>
Math 129	Calculus II	Fall 2009	<i>Instructor</i>
Math 129	Calculus II	Spring 2010	<i>Instructor</i>
Math 323	Mathematical Analysis for Engineers	Summer II 2010	<i>Instructor</i>
Math 410	Matrix Analysis	Summer II 2010	<i>Instructor</i>

Associate Instructor - Indiana University *Spring 2000 to Spring 2007*

Duties included lecturing, writing and grading tests and quizzes, and grading homework.

Math M014	Basic Algebra	Fall 2006	<i>Instructor</i>
Math T101	Mathematics for Elementary School Teachers	Fall 2005	<i>Instructor</i>
Math M025	Pre-Calculus Mathematics	Spring 2003	<i>Instructor</i>
Math M026	Trigonometric Functions	Spring 2003	<i>Instructor</i>
Math M025	Pre-Calculus Mathematics	Fall 2003	<i>Instructor</i>
Math M026	Trigonometric Functions	Fall 2003	<i>Instructor</i>
Math M212	Calculus II	Fall 2002	<i>Recitation Instructor</i>
Math M120	Brief Survey of Calculus II	Fall 2001	<i>Teaching Assistant</i>
Math M512	Real Variable II	Spring 2001	<i>Grader</i>
Math M541	Partial Differential Equation	Spring 2001	<i>Grader</i>
Math M311	Calculus III	Fall 2000	<i>Grader</i>

COURSES I COULD OFFER

- Calculus
- Complex Analysis
- Ordinary Differential Equations
- Numerical Analysis
- Classical Mechanics
- Thermodynamics
- Advanced Calculus
- Linear Algebra
- Partial Differential Equations
- Differential Geometry
- Quantum Mechanics
- Electrodynamics
- Real Analysis
- Algebra
- Calculus of Variations
- Probability
- Statistical Mechanics
- Superconductivity

REFERENCES

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