

# VIGRE Funding Report

(due 30 days after semester of support)

Semester/Summer and Year:

Summer 2009

Name: Michael Bishop

List the graduate courses you have taken this semester (including independent studies), your grades, and the instructors:

Course	Title	Grade	Instructor

List the title, date and location of any talks you have given, either here or elsewhere:

If you are working on your dissertation, include a one paragraph description of your research progress. If you have not yet begun dissertation research, describe your progress toward finding a dissertation topic and advisor and beginning that research.

For potential thesis work, Professor Glickenstein and I met at the end of the summer and discussed doing analysis work relating the Laplacian on a triangularization of a surface to the Laplacian on the surface itself. I'm currently reading the paper he gave me. For the fall, I plan on using this paper as a basis for projects in a couple classes I'm taking. I've also kept in touch with Professor Wehr. We're continuing work on the Random Schrodinger Operator, but at some point in the near future, we'll discuss another problem he has available.

I spent most of the summer working on convergence rates for the case of bounded potential. Late in the summer with some help from Professor Wehr, I was able to figure out the convergence limit as well as rates with probability one for standard bounded potential distributions. Our goal for now is to clean-up some arguments regarding the limits as well as moving onto unbounded potentials. I'm also looking into probability of runs as well as Tauberian Theory to help refine the limits I've developed.

List publications, if any.

Check all activities you completed during the funded period:

Academics:

- Independent Study
- Oral Comprehensive Exam
- Commence Thesis Research
- Conference attendance
- Conference participation
- Complete PhD

Professional development and outreach:

- AP Calculus Visit
- High School Workshops
- Undergraduate Research Project
- Undergraduate Research Seminar
- Super TA
- Mentoring junior graduate students for the qualifying exams
- RTG (help organize)
- Research Seminar (help organize)

Other (please specify)

Read Probability with Martingales by Williams, Functional Analysis by Eidelman, Milman, and Tsolomits  
Worked on Research, Read papers for potential thesis work, Worked on French Language Skills

Attach a brief statement about your academic progress and professional development during the period of support.

Vigre Funding Report  
Michael Bishop  
Summer 2009

For the summer, I set out with three goals: to expand my understanding of probability and analysis, to read papers and projects from professors I'm interested in working with, and to work on my research.

For reading this summer, I started with David Williams "Probability with Martingales." I spent most of June reading the book and working on the problems. It was helpful for working on my understanding of probability, especially probability limits. As a result, I have some good results on my research of the Random Schrodinger Operator with Professor Wehr. At the beginning of July, while I was staying Montreal, I ended up reading a large portion of "Functional Analysis" by Eidelman, Milman, and Tsolomits. The time was spent working on analysis, specifically introducing myself to Spectral Theory. My hope is to continue work on this in the Banach and Hilbert Spaces course I'm taking this Fall.

I also spent a great deal of time trying to read papers professors had given me. I started on "A Survey of Conformally Invariant Measures" given to me by Professor Pickrell. For everyday for two weeks in June, I would spend an hour trying to read this paper. I was unable to get much past the introduction and eventually gave up on it. Professor Ercolani gave me a paper on matrix forms of the Schrodinger Operator that gave a good idea of how the semi-circle law works. It may prove useful if I continue work in the Random Schrodinger Operator with Professor Wehr. Finally, I read several papers from Professor Glickenstein on Ricci flow and Triangularizations.

For potential thesis work, Professor Glickenstein and I met at the end of the summer and discussed doing analysis work relating the Laplacian on a triangularization of a surface to the Laplacian on the surface itself. I'm currently reading the paper he gave me. For the fall, I plan on using this paper as a basis for projects in a couple classes I'm taking. I've also kept in touch with Professor Wehr. We're continuing work on the Random Schrodinger Operator, but at some point in the near future, we'll discuss another problem he has available.

Research this summer was slow going. I spent most of the summer working on convergence rates for the case of bounded potential. Late in the summer with some help from Professor Wehr, I was able to figure out the convergence limit as well as rates with probability one for standard bounded potential distributions. Our goal for now is to clean-up some arguments regarding the limits as well as moving onto unbounded potentials. I'm also looking into probability of runs as well as Tauberian Theory to help refine the limits I've developed.

In addition, I spent some of the summer working on my French. I traveled Montreal for a couple weeks working on my Conversational French. I also translated some legal documents from French to English for my mother as practice for the language test. I plan on taking care of the language requirement this fall.