THE UNIVERSITY OF BRITISH COLUMBIA
Curriculum Vitae for Faculty Members

Date: July 15, 2022   **Initials:** SD

1. **SURNAME:** Demirbas   **FIRST NAME :** Seckin
   ORCHID ID: https://orcid.org/0000-0003-1622-2540

2. **DEPARTMENT/SCHOOL:** Mathematics

3. **FACULTY:** Science

4. **PRESENT RANK:** Assistant Professor of Teaching   **SINCE:** July, 2019

5. ## POST-SECONDARY EDUCATION

University or Institution	Degree	Subject Area	Dates
University of Illinois at Urbana-Champaign*	Ph.D.	Mathematics	2010–2015
Bogazici University, Turkey	Masters	Mathematics	2007–2010
Bogazici University, Turkey	BSci	Mathematics	2002–2007

∗ Note: *Title of Dissertation and Name of Supervisor:*
Wellposedness Theory of Certain Periodic Schrödinger Equations.
Ph.D. thesis, University of Illinois at Urbana-Champaign,
Supervisors: Prof. Burak Erdoğan, Prof. Nikolaos Tzirakis.

Special Professional Qualifications:

6. ## EMPLOYMENT RECORD

   (a) *Prior to coming to UBC:*

University, Company or Organization	Rank or Title	Dates
Northeastern University	Research Instructor	2015-2016
U Illinois at Urbana-Champaign	Research Assistant	2010–2015
MSRI	TA, Workshop on Dispersive Equations	2014 Summer
U Illinois at Urbana-Champaign	Teaching Assistant	2013–2015
Bogazici University, Turkey	Teaching Assistant	2009–2010
Bogazici University, Turkey	Student Teaching Assistant	2006

   (b) *At UBC:*

Rank or Title	Dates
Assistant Professor of Teaching (tenure track)	July 2018–present
Postdoctoral Fellow	July 2016–2018

   (c) *Date of granting of tenure at UBC:* NA.

7. **LEAVES OF ABSENCE**

University, Company or Organization at which leave was taken	Type of leave	Dates

8. **TEACHING**

(a) *Areas of special interest and accomplishments:*

A particular area of focus for me in my teaching is having good rapport with my students and making sure that they know that I am available if they need help. To establish that I go to classes or log in to the online lectures early to have a chat with students, try to learn the names of many of them, and try to have jokes and funny anecdotes during lectures to make them feel more comfortable and happier in class. Caring about their well-being and learning seems to improve their attitudes towards the class, encourages them to work harder, and take more responsibilities.

- I have question-based lectures where I ask prepared questions and have short discussions to guide the students towards an answer or towards understanding the reasoning behind the concepts. Being able to converse freely with students makes these sessions productive and healthy. This also allows me to correct some of the common mistakes students make in friendly and encouraging environment.

- Rather than using all class time to address the class as a whole, I also give students time to work on their own on certain questions. I find that having a good rapport with students is essential to having student participation in such activities.

- I often rearrange existing class schedules in order to facilitate group worksheet days which also helps the students develop a sense of community with their classmates.

- Topics that are hard to visualize can be difficult for students to understand. I use props and visual aids such as pictures and graphs to help them jump over those hurdles more easily. When possible, I also find real-life examples.

- I post all the class material, lecture notes, etc. in a timely manner and in a consistent location. Students know they can ask me for materials, but generally they don't have to.

- I have an an open-door policy for office hours, and often meet students throughout the day, at times that work for them. They know that they are welcome to ask me questions whenever I am in my office and my door is open.

- I was careful to maintain the practice of interacting with students in the online teaching environment. As instructor in charge, I moved the mathematical proofs course, Math 220, entirely online. With the help of Prof. Rechnitzer, we divided the regular lectures into two parts: pre-recorded lectures to watch before class and worksheet problems to work on with students in regular lecture time. This helped us spend more class time on nuance, challenging examples, and discussion.

- One of the most common concerns students mention in our year-long differential calculus course, Math 110, is their lack of knowledge of pre-calculus material like working with fractions, factorizations, etc. Math 110 is offered to students who do not have the required pre-calculus grade to get into the other calculus courses in the

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Math Department. To help students, I created preweek videos (20-30 mins/video) that would cover some of the basic pre-calculus material with examples. The preweek videos were followed by mini quizzes that would help the students practice the content.

- I introduced self-reflection questions to Math 110 workshops that help students reflect on their own knowledge, understanding, study habits, etc.

- I make special efforts making sure that the students know that the classroom was a safe space. I mention this in the introductory lectures. I am also careful with the language used in the class, like using the word 'folks' instead of any gendered words, and removing gendered pronouns from the questions with people involved.

(b) *Courses taught at UBC:*

Session	Course number	Scheduled hours	Class size	Hours taught			
				Lectures	Tutorials	Labs	Other
2021 W2	MATH 110	3 hrs/wk	210	3 hrs/wk			IIC$*_4$
2021 W2	MATH 264/ELEC 211	3 hrs/wk	110	1 hrs/wk			IIC$*_1$
2021 W2	MATH 264/ELEC 211	3 hrs/wk	110	1 hrs/wk			IIC$*_1$
2021 W1	MATH 110	3 hrs/wk	210	3 hrs/wk			IIC$*_4$
2021 W1	MATH 220	3 hrs/wk	80	3 hrs/wk			IIC$*_3$
2020 W2	MATH 110	3 hrs/wk	235	3 hrs/wk			IIC$*_4$
2020 W2	MATH 264/ELEC 211	3 hrs/wk	110	1 hrs/wk			IIC$*_1$
2020 W2	MATH 264/ELEC 211	3 hrs/wk	110	1 hrs/wk			IIC$*_1$
2020 W1	MATH 110	3 hrs/wk	235	3 hrs/wk			IIC$*_4$
2020 W1	MATH 220	3 hrs/wk	45	3 hrs/wk			IIC$*_3$
2020 W1	MATH 220	3 hrs/wk	43	3 hrs/wk			IIC$*_3$
2019 W2	MATH 103	3 hrs/wk	220	3 hrs/wk			
2019 W2	MATH 264/ELEC 211	3 hrs/wk	110	1 hrs/wk			IIC$*_1$
2019 W2	MATH 264/ELEC 211	3 hrs/wk	110	1 hrs/wk			IIC$*_1$
2019 W1	MATH 220	3 hrs/wk	65	3 hrs/wk			
2019 W1	MATH 220	3 hrs/wk	65	3 hrs/wk			
2019 S2	MATH 300	3 hrs/wk	90	3 hrs/wk			IIC$*_2$
2018 W2	MATH 264/ELEC 211	3 hrs/wk	110	1 hrs/wk			IIC$*_1$
2018 W2	MATH 264/ELEC 211	3 hrs/wk	110	1 hrs/wk			IIC$*_1$
2018 W2	MATH 220	3 hrs/wk	65	3 hrs/wk			
2018 W2	MATH 103	3 hrs/wk	220	3 hrs/wk			
2018 W1	MATH 184	3 hrs/wk	224	3 hrs/wk			
2018 W1	MATH 220	3 hrs/wk	65	3 hrs/wk			
2017 W2	MATH 215	3 hrs/wk	135	3 hrs/wk			
2017 W1	MATH 220	3 hrs/wk	65	3 hrs/wk			
2017 W1	MATH 220	3 hrs/wk	65	3 hrs/wk			
2016 W2	MATH 257	3 hrs/wk	105	3 hrs/wk			
2016 W2	MATH 257	3 hrs/wk	15	3 hrs/wk			
2016 W2	MATH 316	3 hrs/wk	15	3 hrs/wk			
2016 W2	MATH 316	3 hrs/wk	105	3 hrs/wk			

2016 W1	MATH 220	3 hrs/wk	65	3 hrs/wk			

∗ Note, IIC = Instructor in charge.

$∗_1$ Note, MATH 264/ELEC 211 is a combined course with ECE department and I am the only Math instructor. I am in charge of that Math portion of the course, including the preparing the lectures, running tutorials, co-organizing the syllabus with the other instructor, and preparing the exams.

$∗_2$ Note, Sole instructor.

$∗_3$ Note, In charge of ten sections. I am in charge of coordinating the syllabus, preparing week lecture notes and mini quizzes, organizing homeworks, managing teaching assistant for grading, and running the common Canvas site.

$∗_4$ Note, Sole instructor.

(c) *Students Supervised (if applicable)*

Student Name	Program Type	Year		Supervisory Role (supervisor, co-supervisor, committee member)
		Start	Finish	
Hannah Kohut		2021	2022	Co-supervised creation of the problem set for our mathematical proofs book
Charlotte Trainor		2021	2022	Co-supervised creation of the problem set for our mathematical proofs book
Charlotte Trainor	Certificate Program in Advanced Teaching and Learning	2021	2022	Mentor

(d) *A summary of student evaluations of teaching effectiveness scores over the past five years (or since appointment if less than five years)*

(e) *Continuing education activities:*

I also attend workshops to inderstand more about and improve my teaching.

Workshops attended

- "When active learning fails: Faculty beliefs, student outcomes, and opportunity gaps" run by Skylight, 2022
- "Online Course Design Showcase Series: Experiences with Single-Point Rubrics: Ways of Sharing Assignment Expectations and Feedback With Your Students" run by CTLT, 2021
- "Exploring Ungrading at UBC: A Paradigm Shift in Teaching and Learning" run by CTLT, 2021
- "Risk and Reward: Augmenting Teaching Practices to Support Student Wellbeing", run by CTLT, 2021
- "Building Interpersonal Relationships in big classes" STEM Summer Series run by Equity & Inclusion Office, 2021

- "Syllabus and Course Design with Inclusion in Mind" STEM Summer Series run by Equity & Inclusion Office, 2021
- "Navigating challenging EDI conversations: Tips and tricks for allies", run by the Math Department members, 2021
- "Using the UBC Wiki to Enhance Student Learning Through Open Assignments" run by CTLT, 2020.
- "Roundtable Discussion: What I Did in My Online Summer Course" run by Skylight Workshop Series, 2020.
- "How to Create Inclusive and Accessible OER" run by CTLT, 2020.
- PrairieLearn meetings where we were introduced to the newly developed online homework and exam platform that may be considered as an alternative for Webwork.
- Jupyter Day run by Prof. Walls to explore the ways I could implement some programming in my classes.

(f) *Visiting lecturer (indicate university/organization and dates):*

(g) *Other:*

9. **EDUCATIONAL LEADERSHIP**

(a) *Areas of special interest and accomplishments in educational leadership*

- I have co-authored an open source book complete with problem sets with Prof. Andrew Rechnitzer on mathematical thinking and proof writing. We made the book cross-platform compatible, inclusive, and accessible to everyone. At the link: `https://personal.math.ubc.ca/~PLP/`, you can find the online version and static PDF version of the book, as well as pre-recorded lecture videos and slides. The source files for the book are also in the public repository: `https://github.com/seckindemirbas/PLP` for other people to access, use, and remix.

  This book will be used as the main textbook for the course "Mathematical Proofs", Math 220, at UBC. Math 220 is one of the first courses students from various majors take where they learn how to think mathematically, proving and disproving statements and writing concise proofs. The book follows the new syllabus I designed (more information on part (b)). Our goal is to help students start thinking about writing proofs as soon as possible so that they have enough time in the semester to correct their mistakes and get better at it.

  We also hired two graduate TAs with the Open Education Resource (OER) Grant we received (see part (e)) to help us write the problem set. We used Gitlab for the collaborative work. It worked very well, that we think this can be a model for effective student involvement in producing OER content.

  The problem set for the book focuses not only on applying the definition and theorems, but also on new and sometimes abstract definitions. Our goal with these problems is to help students break the habit of calculating without understanding, and learn how they can approach new concepts and think more critically.

  Aside from having fully worked out solutions, the problem set also includes hints and scratchwork for more involved questions. We also separated the hints, scratchwork and the solutions for the questions. Our purpose for that is to make sure that the

students have ample opportunity to improve by trying to write the proof on their own after they see the hint and/or the scratchwork.

- I also believe that better education starts at the community level. This is why I was heavily involved in teaching in different communities ranging from incarcerated students in Illinois to underprivileged high school and middle school students in Boston.
  At UBC, I continue to search for future opportunities to be involved in community-wide teaching (more information given in part (h)).

- I also co-organise with Prof. Yeager a STEM talk series, called The Archimedes Talks, for high school students in Vancouver. At these talks professors, postdoctoral fellows, and undergrad engineering teams talk about their work to inspire students and provide examples of UBC research.

(b) *Curriculum development/renewal*

- I restructured our mathematical proofs course, Math 220, to introduce proof methods earlier in the semester to help students build better intuition towards mathematical statements and their proofs. Students generally find this course challenging, and it has a widespread reputation of being a course that negatively affects students' GPAs. This makes students nervous about taking the course, and eventually affect their performance.
  In the transition to online education, I have also created equally spaced online mini quizzes, twice a week, so that the students study the material every week, twice a week, instead of losing track of the topics and trying to catch up with them before the midterm. With these mini quizzes, we also get students to start thinking about harder questions in the upcoming homeworks. Moreover, I have created peer grading assignments through ComPAIR so that the students can reflect on their own work and also help their friends improve theirs. These online assignments and mini quizzes, in addition to the weekly collected homeworks, midterm and the final, not only distribute the graded workloads over the whole semester, but also promote self-regulated learning. Even though these were developed for the online education during the pandemic, they remain a part of the course now that we have returned to the classroom.

(c) *Pedagogical innovation*

(d) *Applications of and contributions to the scholarship of teaching and learning*

- Participated in a Community of Inquiry, whose goal is to investigate how instructors can help develop self-regulated learning skills in students, facilitated by Silvia Mazabel in Education Department at UBC and involving professors from across UBC, 2017.

(e) *Teaching and Learning Grants*

- Open Education Resources grant for $25000 for the 2020/2021 fiscal year for the development of our mathematical proofs book, joint with Prof. Rechnitzer.
  The grant was used to hire two graduate students, Hannah Kohut and Charlotte Trainor to help us write fully worked out problem set for our mathematicals proofs book.

(f) *Formal educational leadership responsibilities*

- Participated in organizing and running TA training workshops in Department of Mathematics, UBC with Matt Coles and the graduate student organizers, 2019-2020.

(g) *Innovation in the use of learning technology*

(h) *Other educational leadership contributions*

- Participated the International Program for the Scholarship of Educational Leadership (SoEL) program in 2020 Summer. During this program, I was able to not only improve my own knowledge on scholarship of educational leadership, but I was also able to contribute to the knowledge of others with my own experiences and expertise through discussions, individualized comments on people's work/presentations. These discussions and comments provided a valuable perspective to all the attendants moving forward with their research or improving their teaching practices.
- Involved, with Kirsten McIlveen (Geography Department), Prof. Yeager, in gathering a group to discuss how we and the University can be involved in implementing and improving different non-existing and existing (such as Walls to Bridges) prison education programs in British Columbia, 2018–2020.
- Founding member and a tutor of Pie-R-Squared, a voluntary tutoring program for underprivileged high school and middle school students in Boston, provided free healthy food and helped students succeed in mathematics, 2015–2016. https://www.piersquared.org/
- Tutor and workshop facilitator with the Education Justice Project, an outreach project for incarcerated students at Danville Correctional Center in Illinois. The project offers upper-level university courses through the University of Illinois, and supports students with coursework for lower-level courses through Danville Area Community College (DACC), 2013–2015. http://www.educationjustice.net/home/

10. **SCHOLARLY AND PROFESSIONAL ACTIVITIES**

(a) *Areas of special interest and accomplishments*

(b) *Invited presentations*

- A Study on Certain Periodic Schrödinger Equation, Hunter College Applied Mathematics (HCAM) Seminar, New York (on Zoom), 2021.

(c) *Other presentations*

- Gibbs' measure and almost sure global well-posedness for one dimensional periodic fractional Schrödinger equation, AMS Sectional Meeting at Michigan State University, East Lansing, Michigan, USA, 2015.

- Gibbs' measure and almost sure global well-posedness for one dimensional periodic fractional Schrödinger equation, AMS Sectional Meeting at San Francisco State University, San Francisco, California, USA, 2014.

- The 2-D Schrödinger Equation on Irrational Tori, SIAM Conference on Analysis of Partial Differential Equations, Orlando, Florida, USA, 2013.

(d) *Other:*

- A Study on Certain Periodic Schrodinger Equations, Hunter College Applied Mathematics (HCAM) Seminar, New York, USA, remotely over Zoom, 2021.

- A lecture on distances and lengths, Joint Session 3, PIMS Diversity In Mathematics: High School Math Camps, Vancouver, British Columbia, Canada, 2020.

- A First Course in Triangles and Circles (joint with Prof. Yeager), PIMS Diversity In Mathematics: High School Math Camps, Vancouver, British Columbia, Canada, 2018.

- Dominoes stacking problem, and infinite sums, Archimedes Talks, University of British Columbia, Vancouver, British Columbia, Canada 2017.

- Gibbs' measure and almost sure global well-posedness for one dimensional periodic fractional Schrödinger equation, Diff. Geom, Math. Phys., PDE Seminar, University of British Columbia, Canada, Vancouver, British Columbia, Canada 2016.

- Gibbs' measure and almost sure global well-posedness for one dimensional periodic fractional Schrödinger equation, Geometry and Analysis Seminar, Northeastern University, Boston, Massachusetts, USA, 2015.

- Introduction to Schrödinger equations, Graduate Students Seminar, UIUC, Urbana, Illinois, USA, 2014.

- Gibbs' measure and almost sure global well-posedness for one dimensional periodic fractional Schrödinger equation, Harmonic Analysis and Partial Differential Equations Seminar, UIUC, Urbana, Illinois, USA, 2014.

- The Schödinger Equation on a compact 2 dimensional Manifold, Graduate Geometry Topology Seminar, UIUC, Urbana, Illinois, USA, 2013.

(e) *Conference Participation (Organizer, Abstract Reviewer, Moderator, or Panelist etc.)*

11. **<u>SERVICE TO THE UNIVERSITY</u>**

(a) *Areas of special interest and accomplishments*

(b) *Memberships on committees, including offices held and dates*

- Member of the Evaluation of Teaching Policy Working Group, 2022
  In this committee, we are trying to determine ways to evaluate teaching that would be equitable, efficient, and can be used in different context within the university.
- Member of the Killam Graduate Teaching Award Committee, 2022
  In this committee, we determined the winners of the 2022 Killam Graduate Teaching Award.

- Member of the FoS Student Experience of Instruction Task Force, 2021
  In this task force, we discussed and came up with suggested new questions for the Faculty of Science questions for the Student Experience of Instruction survey.
- Member of the Beyond COVID - Implications of Design working group, 2021
  In this working group we discussed what we can learn from our experience during pandemic and improve teaching and learning at UBC for the future.
- Member of the Science Planning for Future (SPFF) committee, 2021-present
  Committee members from different departments meet regularly as representatives of their departments to discuss issues related to education in the Faculty of Science.
- Member of the Merit Committee, 2021
  Committee's duty was to determine the recipients of merit and PSA raises within the UBC Math Department.
- Member of the OER Fund Adjudication Committee, 2021
  In this committee, we adjudicated the upcoming OER (Open Education Resources) Fund.
- Member of the team in the Department of Mathematics preparing for the online semester Summer 2020
  We were responsible for coming up with plans for teaching for the upcoming online semester, which included, but not limited to coming up with different solutions for at home lecture recordings.
- Member of the Safety Committee, UBC Math Department, 2020-2021
  Committee's mandate was to identify possible safety hazards and suggest solutions for them for the safety of the UBC Math Department during Covid.
- Member of the Equity Committee 2019-2021
  Committee's mandate was to support and improve equity, diversity, and inclusion within the Department of Mathematics, UBC.

(c) *Other service, including dates*
- Faculty liaison for Faculty of Education 2018–present
- Faculty liaison for Elmacon 2018–present
- MC for the Elmacon contest for grade 6, 2022
- Penalist at Humans of Mathematics, UBC Mathematics Department, 2022
- Participated in orginization of the Elmacon Contest and helped run a practice session, 2021
- Spoke at Fall Awards Night for undergrad scholarship winners, UBC Math Department, 2021
- Worked with Fok-Shuen Leung and Matt Coles on ways to "hybridize" math courses for the start of the semester, 2021
- Worked with Matt Coles on block grant applications for the Math Department, 2021
- Facilitator for Start Off Strong session, 2021
- Facilitator for Imagine UBC "Meet-A-Prof" session, 2021
- Imagine Day presentation for UBC Math Department, 2021
- Co-organizer of the UBC Department of Mathematics movie night, 2021
- Faculty presenter for First Year Science Coaching Initiative, 2021

- Math Learning Centre (MLC) overseer, UBC Math Department, 2019-2021

12. **SERVICE TO THE COMMUNITY**

    (a) *Memberships on scholarly societies, including offices held and dates*

    (b) *Memberships on other societies, including offices held and dates*

    (c) *Memberships on scholarly committees, including offices held and dates*

    (d) *Memberships on other committees, including offices held and dates*

    (e) *Editorship (list journal and dates)*

    (f) *Reviewer (journal, agency, etc. including dates)* Journals:

    (g) *External examiner (indicate universities and dates)*

    (h) *Consultant (indicate organization and dates)*

    (i) *Other service to the community*
- Wrote an article for Prof. Alp Eden's column, Ters Açı, in the Turkish mathematics magazine "Matematik Dünyası" about my job/teaching experience, March, 2022

13. **AWARDS AND DISTINCTIONS**

    (a) *Awards for Teaching (indicate name of award, awarding organizations, date)*

    (b) *Awards for Scholarship (indicate name of award, awarding organizations, date)*

    (c) *Awards for Service (indicate name of award, awarding organizations, date)*

    (d) *Other Awards*
- *AMS Open Champions award 2019*

14. **OTHER RELEVANT INFORMATION** (Maximum One Page)

Publications Record

Date: July 15, 2022   **Initials:** SD

1. **SURNAME:** Demirbas   **FIRST NAME :** Seckin
   ORCHID ID: https://orcid.org/0000-0003-1622-2540

Notes:

- In mathematics authors are typically listed alphabetically.

- Coauthors have, on average, made equal contributions to the work.

1. **REFEREED PUBLICATIONS**

   (a) *Journals*

      1. S. Demirbas , B. Erdoğan, N. Tzirakis
         Existence and Uniqueness Theory for the Fractional Schrödinger Equation on the Torus
         Some topics in harmonic analysis and applications, 145-162, Advanced Lectures in Mathematics (ALM), 34, International Press, Somerville, MA, (2016).
      2. S. Demirbas
         Almost Sure Global Well-posedness for Fractional Cubic Schrödinger Equation on Torus
         Canadian Mathematical Bulletin, 58, 471–485 (2015).
      3. S. Demirbas
         Local Well-posedness for 2-D Schrödinger Equation on Irrational Tori and Bounds on Sobolev Norms
         Communications on Pure and Applied Analysis, **16**, 5, 1517– 1530 (2014).
      4. S. Demirbas, A. Eden
         Further scattering results for almost cubic nonlinear Schrödinger equation
         Applied Math Letters, **24**, no. 2, 111–115 (2011).
      5. S. Demirbas, A. Eden, E. Kuz
         Further regularity results for almost cubic nonlinear Schrödinger equation
         Journal of Nonlinear Analysis, Theory, Methods and Applications **72**, no. 6, 3112-3118 (2010).

   (b) *Conference Proceedings (Refereed)*

   (c) *Other*

2. **NON-REFEREED PUBLICATIONS**

   (a) Journals

   (b) Conference Proceedings

      - Negar M. Harandi, Carol Jaeger, Philip Loewen and Seckin Demirbas
        Assessing Student Workload, Work Habits and Perception of Success in Two Second-Year Integrated Engineering and Math Courses
        The Canadian Engineering Education Association/Association Canadienne de l'Éducation En Génie 2021 (conference), presentation paper, re-submitted with updates.

- Negar M. Harandi, Carol Jaeger, Philip Loewen and Seckin Demirbas
  Assessing Student Workload, Work Habits and Perception of Success in Two Second-Year Integrated Engineering and Math Courses
  The Canadian Engineering Education Association/Association Canadienne de l'Éducation En Génie 2020 (conference), presentation paper, accepted, conference cancelled due to Covid-19.

(c) Other

3. <u>**BOOKS**</u>

   (a) Authored

   - S. Demirbas, Andrew Rechnitzer. *An Introduction to Mathematical Proof*
     Open textbook:
     Link: https://personal.math.ubc.ca/∼PLP/
     Public source repository: https://github.com/seckindemirbas/PLP

   (b) Edited

   (c) Chapters

4. <u>**SPECIAL COPYRIGHTS**</u>

5. <u>**ARTISTIC WORKS, PERFORMANCES, DESIGNS**</u>

6. <u>**OTHER WORKS**</u>

7. <u>**WORK SUBMITTED (including publisher and date of submission)**</u>

8. <u>**WORK IN PROGRESS (including degree of completion)**</u>