

Vincent Bouchard

ASSOCIATE PROFESSOR · ASSOCIATE CHAIR UNDERGRADUATE · RHODES SCHOLAR (QUÉBEC AND MAGDALEN, 2001)

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Education

University of Oxford, Magdalen College

Oxford, UK

D.PHIL. MATHEMATICS

2001–2005

- Supervisor: Rouse Ball Professor Philip Candelas
- Recipient of an NSERC PGS Doctoral Fellowship and a FCAR Doctoral (B2) Scholarship
- Recipient of an NSERC PGS Master's Scholarship and a FCAR Master's (B1) Scholarship

Université de Montréal

Montréal, QC

B.Sc. PHYSICS

1998–2001

- Palmarès de la doyenne, GPA: 4.3/4.3
- Recipient of an NSERC Undergraduate Student Research Award
- Recipient of a Welcome Award from Université de Montréal

Positions

Department of Mathematical and Statistical Sciences, University of Alberta

Edmonton, AB

ASSOCIATE CHAIR (UNDERGRADUATE)

2016–Present

- As Associate Chair (Undergraduate), I am responsible for most things related to undergraduate teaching in the Department of Mathematical and Statistical Sciences.

Department of Mathematical and Statistical Sciences, University of Alberta

Edmonton, AB

ASSOCIATE PROFESSOR

2013–Present

Department of Mathematical and Statistical Sciences, University of Alberta

Edmonton, AB

ASSISTANT PROFESSOR

2009–2013

Physics Department, Harvard University

Cambridge, MA, USA

POSTDOCTORAL FELLOW

2007–2009

Perimeter Institute for Theoretical Physics

Waterloo, ON

POSTDOCTORAL FELLOW

2006–2007

- Recipient of a NSERC Postdoctoral Fellowship.

Mathematical Sciences Research Institute

Berkeley, CA, USA

POSTDOCTORAL FELLOW

2006

Department of Mathematics, University of Pennsylvania

Philadelphia, PA, USA

POSTDOCTORAL FELLOW

2005

Grants

TEACHING

2017–2020 **Faculty of Science Teaching Fellowship**, \$60,000

University of Alberta

RESEARCH

2018–2023 **NSERC Discovery Grant**, \$360,000

NSERC

2013–2018 **NSERC Discovery Grant**, \$225,000

NSERC

2010–2013 **NSERC Discovery Grant**, \$130,000

NSERC

2009–2012 **Startup Research Grant**, \$50,000

University of Alberta

Awards

TEACHING

2018	Rutherford Award for Excellence in Undergraduate Teaching , UofA's premier teaching award	<i>University of Alberta</i>
2016	Innovation in Teaching Award , Faculty of Science	<i>University of Alberta</i>
2016	Excellence in Teaching Award , Interdisciplinary Science Students' Society	<i>University of Alberta</i>
2016	Instructor of the Month , Faculty of Science (December)	<i>University of Alberta</i>
2015	Blended Learning Award , Center for Teaching and Learning (MATH 134 – co-applicant)	<i>University of Alberta</i>
2015	Instructor of Distinction Honor Roll , Faculty of Science	<i>University of Alberta</i>
2014	Blended Learning Award , Center for Teaching and Learning (MATH 144 – lead instructor)	<i>University of Alberta</i>

OTHERS

2001	Rhodes Scholarship , Magdalen College, University of Oxford	<i>Oxford</i>
2001	Forces Avenir , Finalist in the "Personnalité – 1er cycle" category	<i>Québec</i>
1996	Governor General's Academic Medal , Bronze (secondary school level)	<i>Canada</i>

Research

Research Interest

- My research program focuses on the fascinating interface between mathematics and physics, more precisely geometry and string theory. In particular, I am interested in using string dualities to uncover new mathematical structures in geometry, such as in mirror symmetry.

Publications

- Over 25 research papers: see https://arxiv.org/a/bouchard_v_1.html for a list of publications.

Presentations

- Over 95 research talks at conferences and universities all around the world.
- 6 presentations on teaching in learning.

Supervision

- In the last 8 years, I have supervised or co-supervised 5 Postdoctoral Fellows, 3 PhD Students, 7 MSc Students, 12 NSERC Undergraduate Summer Research Students, 10 Undergraduate Research Projects and 1 Graduate Student in the Teaching & Learning Program.

Organization

- I co-organized research workshops and conferences in BIRS, AIM, CMS, as well as the String-Math 2014 international conference in University of Alberta.

Refereeing and Reviewing

- Referee for a large number of research journals in Mathematics and Physics.
- Scientific referee for a number of research grants.
- Reviewer for Mathematical Reviews and MathSciNet.

Further Contributions to Teaching

Curriculum Renewal

- I received a Faculty of Science Teaching Fellowship (2017–2020) to redesign the Mathematics undergraduate curriculum, which is work in progress!

Course Design

- I was the lead instructor and course designer for MATH 144 and 146 (Calculus for the Physical Sciences I and II), under a Blended Learning Award. I designed both courses following a blended learning and flipped pedagogy. I produced all online material (about 75 short videos), and developed in-class activities for a flipped environment in a large classroom setting.

Teacher Training

- I am co-organizing and co-leading an instructor training program for postdoctoral fellows and graduate students in the Department of Mathematical and Statistical Sciences.

Outreach and Extra Teaching

- Every summer since 2013 I have helped organize a two-week Mathematics Summer Camp at the Ermineskin Cree Nation (south of Edmonton), for grade 6–9 students. It involves a day-trip to the University of Alberta campus, which I organize.
- I gave series of lectures on Physical Mathematics at the International Summer Enrichment Program in Mathematics (Summer 2017), at the Alberta Summer Mathematics Institute (2010, 2011), and graduate level mini-courses in University of Toronto (2014), Harvey Mudd College (CA, USA, 2009), CERN (Geneva, 2007), Modave (Belgium, 2005).

Committees

2016–2018 **Member**, Faculty of Science Excellence in Teaching Awards Committee

2016–2018 **Member**, Department of Mathematical & Statistical Sciences Curriculum/Honors Committee

2016–2018 **Member**, Faculty of Science representative on the Faculty of Engineering Council

2016–2018 **Member**, Department of Mathematical & Statistical Sciences Teaching Awards Committee

2014–2016 **Elected Representative**, Faculty Evaluation Committee (FEC)

2014–2016 **Member**, Department of Mathematical & Statistical Sciences Graduate Committee

2013–2015 **Member**, Science 100 (InSciTE) Redevelopment Committee

2011–2018 **Member**, Various MSc and PhD candidacy and examination committees