

# Curriculum Vitae

**Name:** Andrew Fiori

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## Research Positions

- Associate Professor, University of Lethbridge (2021-present)
- Assistant Professor, University of Lethbridge (2017-2021)
- PIMS Postdoctoral Fellow, University of Calgary (2015-2017)
- Postdoctoral Researcher, Queen's University (2013-2015)

## Education

- Ph.D. Mathematics, McGill University (2013)
- M.Sc. Mathematics, McGill University (2009)
- B.Math. Honours Computer Science and Pure Mathematics, University of Waterloo (2007)

## Funding

- NSERC Discovery Grant (RGPIN-2020-05316, 2020/04-2025/04) \$127,500.
- University of Lethbridge Research Fund (2020/04-2021/12) \$6,000.
- University of Lethbridge Startup Grant (2019/06/2021/06) \$20,000.

## Awards

- Fields Postdoctoral Fellowship (2014/09-2015/08)
- NSERC PGSD (2010/09-2012/08)
- ISM Fellowship (2009/09-2011/08)
- NSERC CGSM (2007/09-2009/09)
- NSERC USRA (2004/09-2004/12)
- NSERC USRA (2004/01-2004/04)

## Peer Reviewed Articles

1. C. Cunningham, A. Fiori, N. Kitt, *Appearance of the Kashiwara-Saito singularity in the representation theory of  $p$ -adic  $GL_{16}$* , Accepted to Pacific Journal of Mathematics (2022). pp. 44.  
(<https://arxiv.org/abs/2101.04578>).
2. A. Fiori, *Numerical Verification of the Least Prime in the Chebotarev Density Theorem*, Appendix to H. Kadiri and P. Wong *Primes in the Chebotarev density theorem, for all number fields*, Journal of Number Theory (2022), Available online, pp. 4.  
(<https://doi.org/10.1016/j.jnt.2022.03.012>)
3. A. Fiori, C. Franc, *The unbounded denominator conjecture for the noncongruence subgroups of index 7*, Journal of Number Theory (2022), Available online, pp. 23.  
(<https://doi.org/10.1016/j.jnt.2021.11.014>)
4. C. Cunningham, A. Fiori, A. Moussaoui, J. Mracek, B.Xu, *Arthur packets for  $p$ -adic groups by way of microlocal vanishing cycles of perverse sheaves, with examples*, Memoirs of the American Mathematical Society (2022), Volume 276, Number 1353, pp. 220.  
(<https://doi.org/10.1090/memo/1353>).
5. C. Cunningham, A. Fiori, Q. Zhang, *Arthur packets for  $G_2$  and perverse sheaves on cubics*, Advances in Mathematics (2022), Volume 395, pp. 74.  
(<https://doi.org/10.1016/j.aim.2021.108074>).

6. A. Fiori, F. Scavia F, *Embeddings of Maximal Tori in Groups of Type  $F_4$* , Pacific Journal of Math (2021), Volume 311, Number 1, p. 53–83  
(<http://dx.doi.org/10.2140/pjm.2021.311.53>).
7. R. Baillie, A. Fiori, S. Wagstaff, *Strengthening the Baillie-PSW Primality Test*, Mathematics of Computation (2021), Volume 90, Number 330, p. 1931–1955.  
(<http://dx.doi.org/10.1090/mcom/3616>)
8. A. Fiori, *Rational Conjugacy Classes of Maximal Tori in Groups of type  $D_4$* , Journal of Algebra and Its Applications (2021)., Volume 20, Number 4, pp. 52.  
(<http://dx.doi.org/10.1142/S0219498821500638>).
9. A. Fiori, A. Shallue, *Average Liar Count for Degree 2 Frobenius Pseudoprimes*, Mathematics of Computation (2020), Volume 89, Number 321, p. 493–514.  
(<http://dx.doi.org/10.1090/mcom/3452>).
10. A. Fiori, *Lower Bounds for the Least Prime in Chebotarev*, Algebra and Number Theory (2019), Volume 13, Number 9, p. 2199–2203  
(<http://dx.doi.org/10.2140/ant.2019.13.2199>).
11. A. Fiori, *Sub-Shimura Varieties for Type  $O(2, n)$* , Journal de Théorie des Nombres de Bordeaux (2018), Volume 30, Number 3, p. 979–990.  
(<http://dx.doi.org/10.5802/jtnb.1060>).
12. A. Fiori, *Transfer and Local Density for Hermitian Lattices*, Annales Mathématique du Québec (2018), Volume 42, p. 49–78.  
(<http://dx.doi.org/10.1007/s40316-017-0083-0>).
13. A. Fiori, *A Riemann-Hurwitz Theorem for the Algebraic Euler Characteristic*, Canadian Mathematical Bulletin (2017). Volume 60, Issue 3, p. 490–509  
(<http://dx.doi.org/10.4153/CMB-2017-022-3>).
14. A. Fiori, *On The  $j$ -Invariants of CM-Elliptic Curves Defined Over  $\mathbb{Z}_p$* , Functiones et Approximatio Commentarii Mathematici (2017), Volume 56, Number 2, p. 271–286.  
(<http://dx.doi.org/10.7169/facm/1617>).
15. A. Fiori, *Arithmetic Volumes for Lattices over  $p$ -adic Rings*, Journal of Number Theory (2014), Volume 141, p. 343–374.  
(<http://dx.doi.org/10.1016/j.jnt.2014.02.011>).
16. A. Fiori, *The Characterization of Special Points on Orthogonal Symmetric Spaces*, Journal of Algebra (2012), Volume 372, p. 397–419.  
(<http://dx.doi.org/10.1016/j.jalgebra.2012.08.030>).

## Articles Under Review

17. A. Babei, A. Fiori, C. Franc, *Families of  $\phi$ -congruence subgroups of the modular group*, Submitted (2022), pp. 35.  
(<https://arxiv.org/abs/2206.12442>)
18. A. Fiori, H. Kadiri, J. Swidinsky, *Sharper bounds for the error term in the Prime Number Theorem*, Submitted (2022), pp. 19.  
(<https://arxiv.org/abs/2206.12557>)
19. A. Fiori, H. Kadiri, J. Swidinsky, *Density results for the zeros of zeta applied to the error term in the prime number theorem*, Submitted (2022), pp. 24.  
(<https://arxiv.org/abs/2204.02588>)
20. C. Cunningham, A. Fiori, Q. Zhang, *Toward the endoscopic classification of unipotent representations of  $p$ -adic  $G_2$* , Submitted (2021). pp. 53.  
(<https://arxiv.org/abs/2101.04578>).

## Expository Articles and Other Completed Articles

21. Samuel Broadbent, Andrew Fiori, Habiba Kadiri, Allysa Lumley, Nathan Ng, Joshua Swidinsky, Kirsten Wilk, *Tables of Values of the Chebyshev Functions  $\theta(x)$  and  $\psi(x)$* , Auxiliary Data Tables (2020).  
(<https://arxiv.org/src/2002.11068v2/anc/Full-Tables-Sharper-Bounds-June-2020.pdf>)

22. A. Fiori, *Toroidal Compactifications and Dimension Formulas for Spaces of Modular Forms for orthogonal Shimura Varieties*, published on arXiv (2016). pp. 40.  
(<https://arxiv.org/abs/1610.04865>).
23. A. Fiori, *Rational Conjugacy Classes of Certain Subgroups of  $G_2$* . published on arXiv (2015), pp. 19.  
(<https://arxiv.org/abs/1501.03431>).

## Theses

- *Questions in the Theory of Orthogonal Shimura Varieties*, Ph.D. Thesis, McGill University, 2013, Under Supervision of Prof. Eyal Goren.
- *Special Points on Orthogonal Symmetric Spaces*, Masters Thesis, McGill University, 2009, Under Supervision of Prof. Eyal Goren.

## Supervision of Postdoctoral Researchers

- Félix Baril Boudreau (University of Lethbridge), co-supervisor of PIMS Postdoctoral Researcher, September 2022-Present.
- Peng-Jie Wong (University of Lethbridge), co-supervisor of PIMS Postdoctoral Researcher, September 2019-August 2020.

## Supervision of Graduate Students (University of Lethbridge)

- Golnoush Farzanfard, Masters of Science Student, September 2022-Present.
- Hiva Gheisari, Masters of Science Student, January 2022-Present.
- Connor Riddlesden, Masters of Science Student, September 2020-August 2022.  
Thesis Title: *Combinatorial Approach to ABV-Packets for  $GL_N$* .
- Joel Benesh, Masters of Science Student, September 2020-December 2022.  
Thesis Title: *Equivariant Resolutions of Singularities for Orbits in Generalized Quiver Varieties Arising in the Local Langlands Program for  $p$ -adic Groups*.

## Supervision of Undergraduate Projects (University of Lethbridge)

- Joshua Swidinsky, co-supervisor for project *New explicit bounds for  $\pi(x)$* , NSERC-USRA Summer 2021 (May-August).
- Joshua Swidinsky, co-supervisor for project *Refining Pintz Method to Estimate the Count of Prime Numbers*, NSERC-USRA Summer 2020 (May-August); part time assistant researcher Fall 2020 (September-December).
- Joshua Swidinsky, co-supervisor for project *Building an interactive database of explicit bounds for prime counting functions*, Summer 2019 (May-August)
- Vincent Cote, co-supervisor for project *Sharp bounds for for the prime counting function  $\psi(x)$* , NSERC-USRA Summer 2018 (May-August); part time assistant researcher Fall 2018 (September-December).
- Julius Moore, co-supervisor for project *Numerical calculations of prime counting functions*, NSERC-USRA Summer 2018 (May-August).

## Teaching Experience

### Instructor - University of Lethbridge

- Math 1560 - Calculus 1 - Winter 2021
- Math 2000 - Mathematical Concepts - Fall 2017, Winter 2018, Fall 2018, Winter 2019, Fall 2021, Winter 2022, Winter 2023
- Math 3410 - Linear Algebra II - Winter 2018, Winter 2019, Winter 2020, Fall 2020
- Math 3461 - Elementary Number Theory - Winter 2020
- Math 4405/5405 - General Abstract Algebra - Fall 2020
- Math 4460/5460 - Advanced Number Theory - Fall 2019

### Instructor - University of Calgary

- Linear Methods I - Fall 2015
- University Calculus I - Fall 2016
- University Calculus II - Spring 2017

## Instructor - Queens University

- Linear Algebra - Fall 2013
- Linear Algebra (for engineers) - Winter 2014
- Differential and Integral Calculus - Fall 2014/Winter 2015
- Calculus 1 - Winter 2014

## Teaching Assistant - McGill University

- Calculus 1 - Winter 2011, Fall 2012, Winter 2012 , Winter 2013
- Calculus A - Fall 2009

## Service

- Mathematics and Computer Science Departmental NSERC Representative (University of Lethbridge 2023-present)
- Chair of the Mathematics and Computer Science Departmental Scholarship Committee (University of Lethbridge 2023-present)
- Member of the Mathematics and Computer Science Salary, Tenure and Promotion Committee (University of Lethbridge 2022-present)
- Alternate Member of the Religious Studies Search and Chair Selection Committee (University of Lethbridge 2021-2022)
- Member of the Mathematics and Computer Science Search Committee (University of Lethbridge 2021-2022)
- Member of the Mathematics and Computer Science Graduate Education Committee (University of Lethbridge 2020-present)
- Member of the Mathematics and Computer Science Departmental Curriculum Committee (University of Lethbridge 2018-2021)
- Member of the Mathematics and Computer Science Departmental Scholarship Committee (University of Lethbridge 2020-2023)
- Co-organizer of Alberta Number Theory Days XII Workshop (2020)
- Organizer of the Math and CS Student Seminar (University of Lethbridge 2018-2022)
- Organizer of CRG: Explicit Methods for Abelian Varieties Seminar (PIMS 2015-2017)
- Organizer of Number Nosh Seminar (University of Calgary 2015-2017)
- Member of the Postdoctoral Representatives Committee (University of Calgary 2016-2017)

## Talks

1. July 2022 - McMaster University Algebra and Algebraic Geometry Seminar *The Appearance of Quiver Representation Varieties in the Local Langlands Program.* (Hamilton-Invited)
2. March 2021 - University of Lethbridge Number Theory and Combinatorics Seminar *Unbounded Denominators for Non-Congruence Forms of Index 7.* (Lethbridge-Contributed)
3. December 2020 - Calgary Algebra & Number Theory seminar *Unbounded Denominators for Non-Congruence Forms of Index 7.* (Calgary-Invited)
4. December 2019 - University of Lethbridge Number Theory and Combinatorics Seminar *Simplicity of ABV-packets for Arthur Type Parameters in  $GL_n$ .* (Lethbridge-Contributed)
5. August 2019 - Applied Mathematics, Modeling and Computational Science Conference *The Least Prime in the Chebotarev Density Theorem.* (Waterloo-Invited)
6. May 2019 - Alberta Number Theory Days *The Least Prime in the Chebotarev Theorem.* (Banff-Invited)
7. October 2018 - University of Lethbridge Number Theory and Combinatorics Seminar *The First Prime in the Chebotarev Theorem.* (Lethbridge-Contributed)
8. July 2018 - 15th Conference of the Canadian Number Theory Association *Arthur Packets for  $p$ -adic Groups through Vanishing Cycles and Perverse Sheaves.* (Quebec-Contributed)
9. February 2018 - University of Lethbridge Number Theory and Combinatorics Seminar *A Geometric Description of Arthur Packets.* (Lethbridge-Contributed)
10. October 2017 - University of Lethbridge Number Theory and Combinatorics Seminar *The Average Number of Quadratic Frobenius Pseudoprimes.*(Lethbridge-Contributed)

11. June 2016 - 14th Conference of the Canadian Number Theory Association *The Average Number of Quadratic Frobenius Pseudoprimes*. (Calgary-Contributed)
12. April 2016 - Alberta Math Dialog *Morphisms in the Category of Algebraic Groups over a Field*. (Calgary-Contributed)
13. April 2016 - Alberta Number Theory Days *The Average Number of Quadratic Frobenius Pseudoprimes*. (Banff-Invited)
14. January 2016 - PIMS - CRG: Explicit Methods for Abelian Varieties Seminar *The Distribution of  $J$ -invariants for CM Elliptic Curves defined over  $\mathbb{Z}_p$* . (Online-Invited)
15. December 2015 - Canadian Mathematical Society Winter Meetings *Understanding the Category of Algebraic Groups over a Field*. (Montreal-Invited)
16. March 2015 - University of Virginia - Algebra Seminar *Rational Conjugacy Classes of Maximal Tori in  $G_2$  and  $F_4$* . (Virginia-Invited)
17. November 2014 - Queen's University Departmental Colloquium *The Distribution of Factors of Minimal Polynomials of  $j$ -Invariants of CM-Elliptic Curves*. (Kingston-Invited)
18. November 2014 - Queen's Algebraic Geometry Seminar *Dimension formulas for modular forms on orthogonal locally symmetric spaces*. (Kingston-Contributed)
19. June 2014 - 13th Conference of the Canadian Number Theory Association *Arithmetic Volumes for Lattices over  $p$ -adic Rings*. (Toronto-Contributed)
20. March 2014 - McMaster University Algebra and Number Theory Seminar *Arithmetic Volumes for Lattices over  $p$ -adic Rings*. (Hamilton-Invited)
21. November 2013 - Queen's Algebraic Geometry Seminar *Characterization of Special Points on Orthogonal Shimura Varieties*. (Kingston-Contributed)
22. August 2013 - University of Calgary West End Number Theory Seminar *Characterization of Special Points on Orthogonal Shimura Varieties*. (Calgary-Invited)
23. May 2013 - Colloque Pan-Québécois des Étudiants de l'ISM *Characterization of Tori in Orthogonal Groups*. (Montreal-Invited)
24. April 2013 - University of California at Santa Cruz Algebra & Number Theory Seminar *Characterization of Special Points on Orthogonal Shimura Varieties*. (Santa Cruz-Invited)
25. April 2013 - Montreal-Toronto Workshop in Number Theory *Classification of Dieudonné Modules up to Isogeny*. (Toronto-Invited)
26. April 2013 - Quebec-Vermont Number Theory Seminar *Arithmetic Volumes of Hermitian Lattices*. (Montreal-Invited)
27. December 2012 - Canadian Mathematical Society Winter Meetings *Characterization of Special Points on Orthogonal Shimura Varieties*. (Montreal-Invited)
28. April 2012 - Montreal-Toronto Workshop in Number Theory *Applications of Kuga Varieties*. (Montreal-Invited)
29. Sept 2010 - Montreal-Toronto Workshop in Number Theory *Hermitian Symmetric Spaces and Modular Forms*. (Montreal-Invited)