Antoine BOURGET

PERSONAL DATA

PLACE AND DATE OF BIRTH:	Colombes, France | 3 January 1989
PHONE:	+33 6 32 05 57 74
EMAIL:	antoine.bourget@polytechnique.org
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LANGUAGES:	French, English, Spanish (fluent) – Chinese (intermediate).

EDUCATION

Jul 2016 | PhD in theoretical physics, ÉCOLE NORMALE SUPÉRIEURE, Paris, France
Mention très bien avec les félicitations du jury
Thesis: Modularity and Vacua in $\mathcal{N} = 1^*$ Supersymmetric Gauge Theories
Advisor: Jan Troost
Examiners: O. Aharony, C. Bachas, A. Hanany, M. Petrini, S.P. Kumar, H. Samtleben

Jun 2013 | Master in theoretical physics, ÉCOLE NORMALE SUPÉRIEURE, Paris, France

Sept 2011 | ÉCOLE NATIONALE SUPÉRIEURE DES MINES, Paris, France
Admission to the *Corps des Mines* (rank 3).

2008-2011 | ÉCOLE POLYTECHNIQUE, Palaiseau, France
Major in Mathematics and Theoretical Physics. GPA: 4.0
Admission from the MP* Classe Préparatoire (rank 2).

WORK EXPERIENCE

Current
OCT 2018 | IMPERIAL COLLEGE, London, UK
Postdoctoral researcher in High Energy Physics
String theory, supersymmetric quantum field theory, mathematical physics.

SEP 2018
SEP 2016 | UNIVERSITY OF OVIEDO, Spain
Postdoctoral researcher in High Energy Physics
String theory, supersymmetric quantum field theory, mathematical physics.

Teaching

2020	Lectures on Algebraic singularities in Physics Lectures as part of the MSc in Quantum Fields and Fundamental Forces Imperial College London.
2019-2020	Supervision of undergraduate students (UROP student from Imperial College, Master student from ENS Lyon)
2014-2016	TA in Quantum Mechanics Undergrad level, ENS Paris.
2015-2016	TA in General Relativity MSc level, ENS Paris.

Outreach and Activities

- Channel Scientia Egregia on Youtube, with videos filling the gap between undergrad and research level in math and theoretical physics ($> 27,000$ hours total views).

- Outreach organizations: *I'm a Scientist* (connecting scientists with highschool in the UK), Imperial College Science Forum, TALENS association (maths and physics classes in disadvantaged highschools)

- Organizer of the String Theory seminars, London Triangle and Polygon seminars (2020-2021).

- Organizer of the Imperial College Theory Group Seminar series (2018-2020).

- Organizer of the SCGSC 2016.

Publications

- AB, Simone Giacomelli, Julius F. Grimminger, Amihay Hanany, Marcus Sperling and Zhenghao Zhong, *S-fold magnetic quivers*, arXiv:2010.05889.

- Marieke van Beest, AB, Julius Eckhard and Sakura Schafer-Nameki, *Symplectic Leaves and 5d Higgs Branches in the Polygonesian Tropical Rain Forest*, arXiv:2008.05577.

- AB, Julius F. Grimminger, Amihay Hanany, Rudolph Kalveks, Marcus Sperling and Zhenghao Zhong, *Magnetic Lattices for Orthosymplectic Quivers*, arXiv:2007.04667.

- AB, Julius F. Grimminger, Amihay Hanany, Marcus Sperling, Gabi Zafrir and Zhenghao Zhong, *Magnetic quivers for rank 1 theories*, JHEP 09 (2020) 189.

- AB, Amihay Hanany, and Dominik Miketa, *Quiver origami: discrete gauging and folding*, arXiv:2005.05273.

- AB, Julius F. Grimminger, Amihay Hanany, Marcus Sperling and Zhenghao Zhong, *Magnetic Quivers from Brane Webs with O5 Planes*, JHEP 07 (2020) 204.

- Philip Argyres, AB and Mario Martone, *On the moduli spaces of 4d N=3 SCFTs I: triple special Kähler structure*, arXiv:1912.04926.

- AB, Santiago Cabrera, Julius F. Grimminger, Amihay Hanany and Zhenghao Zhong, *Brane Webs and Magnetic Quivers for SQCD*, JHEP 03 (2020) 176.

- AB, Santiago Cabrera, Julius F. Grimminger, Amihay Hanany, Marcus Sperling, Anton Zajac and Zhenghao Zhong, *The Higgs Mechanism - Hasse Diagrams for Symplectic Singularities*, JHEP 01 (2020) 157.

- Philip Argyres, AB and Mario Martone, *Classification of all $\mathcal{N} \geq 3$ moduli space orbifold geometries at rank 2*, arXiv:1904.10969.

- Guillermo Arias-Tamargo, AB, Alessandro Pini and Diego Rodríguez-Gómez, *Discrete gauge theories of charge conjugation*, Nucl.Phys. B946 (2019) 114721.

- AB, Diego Rodríguez-Gómez and Jorge Russo, *Universality of Toda equation in N=2 superconformal field theories*, JHEP 1902 (2019) 011.

- AB, Alessandro Pini and Diego Rodríguez-Gómez, *The Importance of Being Disconnected, A Principal Extension for Serious Groups*, Nucl.Phys. B940 (2019) 351-376.

- AB, Diego Rodríguez-Gómez and Jorge Russo, *A limit for large R-charge correlators in N=2 theories*, JHEP 1805 (2018) 074.

- AB and Jan Troost, *The Conformal Characters*, JHEP 1804 (2018) 055.

- AB, Alessandro Pini, Diego Rodríguez-Gómez, *Towards the deconstruction of the type D (2,0) theory*, JHEP **1712** (2017).

- AB and Jan Troost, *Permutations of Massive Vacua*, JHEP **1705** (2017) 042.

- AB and Alessandro Pini, *Non-Connected Gauge Groups and the Plethystic Program*, JHEP **1710** (2017) 033.

- AB and Jan Troost, *The Arithmetic of Supersymmetric Vacua*, JHEP **07** (2016) 036.

- AB, *Modularity and Vacua in $\mathcal{N} = 1^*$ Supersymmetric Gauge Theory*, July 2016, PhD thesis.

- AB and Jan Troost, *The Covariant Chiral Ring*, JHEP **03** (2016) 163.

- AB and Jan Troost, *On the $\mathcal{N} = 1^*$ Gauge Theory on a Circle and Elliptic Integrable Systems*, JHEP **01** (2016) 097.

- AB and Jan Troost, *Counting the massive vacua of $\mathcal{N} = 1^*$ super Yang-Mills theory*, JHEP **1508** (2015) 106.

- AB and Jan Troost, *Duality and modularity in elliptic integrable systems and vacua of $\mathcal{N} = 1^*$ gauge theories*, JHEP **1504** (2015) 128.

Talks and presentations

- 29/01/2014 LPTENS, "Introduction to string theory".

- 19/02/2015 LPTHE Jussieu, "Duality and Modularity in Elliptic Integrable Systems".

- 10/11/2015 CNAM Paris (RJP), "Do we live in a hologram ?".

- 01/07/2016 LPTENS (Soutenance de thèse), "Modularity and Vacua in N=1* supersymmetric gauge theories"

- 04/10/2016 Universidad de Oviedo, "A dance with supersymmetric vacua"

- 27/09/2017 Imperial College London, "Higgs branch Hilbert series and non-connected gauge groups"

- 31/10/2017 Università Milano-Bicocca, "Towards deconstruction of type D (2,0) theory"
- 30/11/2017 LPMT, Tours, "Théories de carquois et Séries de Hilbert"
- 04/12/2017 CPHT, Ecole Polytechnique, "Quivers, Hilbert series and Deconstruction"
- 07/10/2017 Universitat de Barcelona, "Towards deconstruction of type D (2,0) theory".
- 22/01/2018 Nordita, "Towards deconstruction of type D (2,0) theory".
- 24/01/2018 Uppsala University, "Towards deconstruction of type D (2,0) theory".
- 12/02/2018 Oviedo University, "Nilpotent orbits and quiver theories".
- 05/06/2018 University of Torino, "The importance of being disconnected: principal extension gauge theories".
- 02/07/2018 Institut de Physique Nucléaire de Lyon, "Moduli spaces of theories with disconnected gauge groups".
- 18/07/2018 Albert Einstein Center at the University of Bern, "The importance of being disconnected".
- 09/10/2018 Imperial College London, "Extremal correlators in 4d $\mathcal{N} = 2$ SCFTs and Toda equations".
- 30/11/2018 Imperial College London, "Computing Hilbert series from free resolutions".
- 03/04/2019 DESY, Hamburg, "Brane webs and the SQCD Higgs Branch".
- 21/05/2019 Oviedo University, "Magnetic quivers and Brane Webs for 4d N=2 SQCD".
- 30/09/2019 CEICO, Prague, "Hasse diagrams and Higgs branches".
- 09/10/2019 Joint seminar, Institute for Theoretical Physics, Leuven, "Hasse diagrams and Higgs branches".
- 21/10/2019 University of Oxford, "Hasse diagrams and Higgs branches".
- 25/10/2019 Durham University, "Hasse diagrams and Higgs branches".
- 06/12/2019 Utrecht University, "Hasse diagrams and Higgs branches".
- 09/12/2019 Joburg Meeting on String theory, "Symplectic Singularities".
- 19/12/2019 Institut Henri Poincaré, Rencontres théoriciennes, "Hasse diagrams and Higgs branches".
- 01/06/2020 Lectures for the Simons Collaboration on Special Holonomy in Geometry, Analysis, and Physics.
- 17/07/2020 Quiver Meeting, Imperial College, "The Affine Grassmannian and Quivers".
- 17/09/2020 SISSA, Workshop on Geometric Correspondences of Gauge Theories X, "Magnetic quivers for rank-1 4d $\mathcal{N} = 4$ theories".

Conferences, Workshops, Schools

- 2-14 June 2014: String Theory and Holography, Cargèse Summer Institute.

- 1-5 February 2016: CERN Winter School on Supergravity, Strings, and Gauge Theory.

- 11-15 April 2016: Mathematics of String Theory, CIRM.

- 16-18 November 2016: Postgraduate Meeting On Theoretical Physics, Oviedo University.

- 11-23 June 2017: Gauge theories, supergravity and superstrings, Centro de Ciencias de Benasque.

- 5-6 October 2017: Holography and Quantum Gravity workshop, Universidad de Oviedo.

- 16-18 July 2018: Supersymmetric theories, dualities and deformations, Institute for Theoretical Physics of the Albert Einstein Center at the University of Bern.

- 19-27 July 2018: IHES Summer School on Supersymmetric localization and exact results, IHES.

- 3-21 June 2019: Mathematical and Geometric Tools for Conformal Field Theories, Pollica Summer Workshop.

- 9-13 July 2019: Strings 2019, Bruxelles.

- 21 July - 4 August 2019: Cosmology and String Theory, Simons Summer Workshop, Stony Brook.

- 3-6 September 2019: Geometry and Strings 2019, Oxford.

- 9-13 December 2019: Joburg Workshop on String Theory. Calabi–Yaus, Machine Learning, and Aspects of 6D QFT.

- 1-5 June 2020: Moduli of special holonomy metrics and their periods (Simons Collaboration).

- 14-18 September 2020: SISSA Workshop on Geometric Correspondences of Gauge Theories X.