

Tim Hosgood

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Research

Current research. Defining Chern classes in Hodge and Deligne (i.e. holomorphic) cohomology for coherent sheaves on paracompact complex-analytic manifolds using twisting cochains and simplicial methods. Following on from work by Brylinski and McLaughlin; Grivaux; O'Brian, Toledo, and Tong; and Green.

Research interests. Homotopy theory, derived algebraic geometry, higher category theory, applied category theory.

Education and academic employment

2019 – Université de Montpellier	Scientist as part of the DerSympApp project (ERC grant 768679).
2016 – Université d'Aix-Marseille	Doctorat (en Mathématiques) under Julien Grivaux and Damien Calaque.
2012 – 2016 University of Oxford	MMath (Masters in Mathematics), BA Mathematics First class honours, upper second-class honours (resp.).
2006 – 2012 Kingsley School, Bideford	A-Levels, GCSEs Maths, Further Maths, Music (A*), French, Spanish (A)

Papers and preprints

1. **An introduction to varieties in weighted projective space.** 2016.
arxiv.org/abs/1604.02441
(Comments: Undergraduate summer project with Balázs Szendrői; in need of rewriting.)
2. **Death and extended persistence in computational algebraic topology.** 2016.
arxiv.org/abs/1609.00920
(Comments: Secondary master's thesis.)
3. **Simplicial Chern-Weil theory for coherent analytic sheaves, part I.** 2020.
arxiv.org/abs/2003.10023
(Comments: The first paper extracted from my PhD thesis.)
4. **Simplicial Chern-Weil theory for coherent analytic sheaves, part II.** 2020.
arxiv.org/abs/2003.10591
(Comments: The second paper extracted from my PhD thesis.)

Conference and seminar talks

- 2019 **Simplicial Chern-Weil theory**
DerSympApp, Université de Montpellier
- Twisting cochains and twisted complexes**
Young Topologists Meeting, Lausanne
- 2018 **Des méthodes simpliciales pour la géométrie complexe**
Conférence de l'équipe AGT d'Aix-Marseille
- 2017 **Les classes de Chern des fibrés vectoriels dans la cohomologie de Hodge**
Séminaire Géométrie Complexe d'Aix-Marseille

Teaching

Université d'Aix-Marseille

- 2018 – 2019 **Maths en anglais.** *3rd-year undergraduates, English*
Real analysis (Heine-Borel, Bolzano-Weierstrass, etc.); helping French students to improve their mathematical English.
- Calcul différentiel.** *2nd-year undergraduates, French*
Basic topology and multivariable calculus.
- 2017 – 2018 **Algèbre linéaire.** *2nd-year undergraduates, French*
Vector spaces, linear maps, eigenspaces, Jordan normal form.

Kingsley School, Bideford

- 2013 **Further Mathematics A-Level.** *Sixth-form, English*
FP1, FP2, D2 (Edexcel).
- Mathematics A-Level.** *Sixth-form, English*
C1 – C4, D1, M1 (Edexcel).

Other professional experience

- 2016
**Hertford College,
University of Oxford** **IT Technician and Help-desk Manager**
Led site-based IT development and network infrastructure upgrades. Managed staff and student help desk for the entire college, with responsibilities including hardware repair and software support. Improved registration systems with shell-scripting automation (Ruby, Bash). Various server management and maintenance tasks.
- 2014
Metaswitch, Cambridge **Network Functions Virtualisation Intern**
Worked as part of the NFV team on the Virtual Route Reflector. Researched and presented information to the whole team on various aspects of network configuration management (e.g. NETCONF, TACACS+) before implementing them. Set up test systems for aforementioned aspects, as well as others. Gained experience with C, Bash, and Python. Completed an Effective Communications course, as well as a three-day hackathon.