Enrico Fatighenti

Academic Positions

2020 - 2021   **Postdoctoral Fellow**, *IMT Toulouse*, Sponsored by CIMI Toulouse.

2018 - 2020   **Postdoctoral Fellow**, *Loughborough University*, EPSRC Doctoral Prize Fellow.

2017 - 2018   **Postdoctoral Fellow**, *Università Roma Tre*, Sponsored by MIUR-project FIRB 2012 "Moduli spaces and their applications".

(Long) Research stays

02/2020   **Research In Paris**, *Institut Henri Poincaré*, Paris, 3 weeks.

08/2016   **Visiting Researcher**, *University of Nairobi*, Nairobi, 2 weeks.

09/2015   **Visiting Researcher**, *KIAS (Korea Institute for Advanced Studies)*, Seoul, 1 Month.

Education

2017   **PhD in Mathematics**, *University of Warwick*, Supervisor: Professor Miles Reid, FRS.
Thesis title: "Hodge Theory in Grassmannians"

2013   **MSc in Pure Mathematics**, *Sapienza Università di Roma*.
Final mark: 110/110 cum laude

Publications

Published Articles

A note on a Griffiths-type ring for complete intersections in Grassmannians, with Giovanni Mongardi, *Mathematische Zeitschrift*, to appear.

Nested varieties of K3 type, with Marcello Bernardara and Laurent Manivel, *Journal de l'École polytechnique-Mathématiques (JEP)*, Tome 8 (2021), pp. 733-778.

Fano varieties of K3 type and IHS manifolds, with Giovanni Mongardi, *Int.Math.Res.Not. (IMRN)*, Volume 2021, Issue 4, February 2021, Pages 3097-3142.

Hodge numbers and deformations of Fano threefolds, with Gavin Brown, *Doc. Math.* 25, 267-307 (2020).

Surfaces of general type with $p_g = 1$, $q = 0$, $K^2 = 6$ and Grassmannians, *Math. Nachr.* 293 (2020), no. 1 (January), Pages 88-100.

Weighted Fano varieties and infinitesimal Torelli problem, with Francesco Zucconi and Luca Rizzi, *Journal of Geometry and Physics*, Volume 139, May 2019, Pages 1-16.

Hodge Theory and deformations of affine cones of subcanonical projective varieties, with Domenico Fiorenza and Carmelo di Natale, *J. Lond. Math. Soc.* (2) 96 (2017), no. 3, 524-544.

Hodge theory in Grassmannians, PhD Thesis, Warwick, 2017.

Preprints

Fano 3-folds from homogeneous vector bundles over Grassmannians, *arXiv:2009.13382*, with Lorenzo De Biase and Fabio Tanturri, submitted.

A journey from the octonionic $\mathbb{P}^2$ to a fake $\mathbb{P}^2$, *arXiv:2008.09731*, with Lev Borisov and Anders Buch, submitted.

New explicit constructions of surfaces of general type, *arXiv:2004.02637*, with Lev Borisov, submitted.

Research Interests

Fano manifolds of K3 and Calabi–Yau type and link with hyperkähler geometry. Explicit constructions of varieties in homogenous varieties and their Hodge theory.

Explicit construction of surfaces of general type with small p_g, K^2 and Calabi-Yau quotients in low dimension.

Fano and Calabi-Yau varieties in Weighted Projective Spaces. Explicit birational classification, especially of $\mathbb{Q}$ -Fano threefolds.

Teaching experience
Undergraduate Teaching

2018/19	Lecturer for 18MAB241 - Complex Variables, Loughborough University. 18 hours (6 weeks).
2015/16	Teaching Assistant for the module "Algebraic Geometry" at University of Warwick. 12 hours (12 weeks)
2014/15	Teaching Assistant for the module "Riemann Surfaces" at University of Warwick. 12 hours (12 weeks)
2013/14	Teaching Assistant for the module "Manifolds" at University of Warwick. 12 hours (12 weeks)

Graduate Teaching

2017/18	PhD Course "Topics on Fano varieties", Roma Tre University. 14 hours (7 weeks).
2016	Master course on "Topology of hypersurfaces", University of Nairobi. 8 hours (2 weeks).

Students supervised

2018-19	Xiaoshan Huang: BSc Final project, *Hilbert's Nullstellensatz and Bézout Theorem*. Served as committe member for Thesis defense.

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Fundings obtained

2020	Research In Paris grant, supported by Institut Henri Poincaré, €3000. Grant for the research project: *The hunt for fano varieties of K3 type*, in collaboration with Fabio Tanturri.
2018	Travel grant from INDAM (Italian national institute of higher mathematics) to visit Japan, €750.
2018	LMS Scheme 8 Grant (£2430) to organise the conference "2CinC: COW and Calf in Cardiff".
2017	Secured funding for GAeL XXV in Bath (£22149) from several funding bodies, including Compositio Mathematica, GMJT, Heilbronn, IMA, IMI, LMS, University of Bath.

Honours, Awards and Studentships

2017	EPSRC Doctoral Prize (18-Months postdoc at Loughborough University, starting October 2018)
2013	3.5-years Warwick University full studentship +EPSRC studentship covering fees
2013	Percorso D'Eccellenza per Laurea Magistrale (award of excellence for outstanding students during the MSc)
2008	MIUR (Ministry of Public Instruction and Research) Award of Excellence for Scientific High School degree

Talks and Courses given
Conferences

2021	*BMC-BAMC Glasgow 2021*, online
2020	*Simons conference on K-stability*, online
2020	*Japanese-European Symposium on Symplectic Varieties and Moduli spaces V*, online
2020	*Workshop EXARCHOS*, Ravenna

2019   *Winter school on Bridgeland stability*, Warwick University

2019   *Integrable systems and automorphic forms*, Lille University

2019   *Workshop on Fano varieties and IHS manifolds*, Rimini

2018   *Fano varieties and their automorphisms*, Loughborough

2018   *GAeL XXVI*, Strasbourg

2018   *Giornate di Geometria Algebrica e argomenti correlati XIV*, Genova

2018   *Motives of Calabi-Yau manifolds*, IMPAN Kraków

2017   *Higher Dimensional Birational Geometry-in honour of Professor Mori*, University of Warwick

2015   *Algebraic Geometry and Representation Theory in Rome*, La Sapienza

Seminars

2021   *Oberseminar "Algebra und Theoretische Mathematik"*, TU Chemnitz

2021   *Algebraic Geometry Seminar*, Università di Trento

2020   *COW seminar*, Online COW

2020   *Nottingham Algebraic Geometry Seminar* , online

2020   *Algebraic Geometry Seminar*, Toulouse University

2020   *Seminaire de geometrie algebrique*, IMJ-PRG Paris

2019   *Algebraic Geometry Seminar*, Torino University

2019   *Algebraic Geometry Seminar*, Liverpool University

2019   *Geometry and Mathematical Physics Seminar*, University of Birmingham

2019   *Algebraic Geometry Seminar*, Oslo University

2019   *Algebraic Geometry Seminar*, Alma Mater Studiorum - Università di Bologna

2019   *MAGIC Seminar*, Imperial College London

2019   *GAPT Seminar*, Cardiff University

2019   *Algebraic Geometry Seminar*, Lille University

2018   *Algebraic Geometry Seminar*, Toulouse University

2018   *Algebraic Geometry Seminar*, HSE Moscow

2017   *Algebraic Geometry Seminar*, Università Roma Tre

2017   *Algebraic Geometry Seminar*, Loughborough University

2017   *Algebraic Geometry Seminar*, Alma Mater Studiorum - Università di Bologna

2017   *Algebraic Geometry Seminar*, Toulouse University

2016   *COW seminar*, University of Bath

2016   *Algebraic Geometry OberSeminar*, IAG Leibniz Universität Hannover

2016   *Algebraic Geometry Seminar*, Cardiff University

2015   *CALF Seminar*, University of Oxford

2015   *Algebraic Geometry Seminar*, KIAS

Academic activities

Referee for Compositio Mathematica, Proceedings of the London Mathematical Society and Revista Matemática Complutense

Reviewer for zbMATH and Math Reviews

Seminar and Conferences Organized

2/2017   **Organizer of the conference "2CinC: Cow and Calf in Cardiff'**, *Secured funding from London Mathematical Society, Cardiff University.*

2015-2017   **Main Organizer of the GAeL Conference (editions XXIV-XXV)** , *Secured funding from London Mathematical Society, Compositio Mathematica, Glasgow Mathematical Journal Trust, Heilbronn Foundation, Bath University, EPSRC via 3CinG Grant.*

2014-2017 **Main Organizer of the CALF Seminar**, *together with Claudio Onorati (Bath).*

Membership in Research groups, Grants and Projects

2020   Collaborator for EPRSC EP/T001968/1: "The Abram Gannibal Project: Collaborative research in applied algebra and geometry in Africa"

2018/2020   Member of the Centre for Geometry and Applications, Loughborough University

2017/18   Member of the Roma Tre unit for FIRB 2012 "Moduli Spaces and Their Applications"

2017-   External collaborator for EPSRC EP/N03189X/1 "3CinG"

Languages

Italian   Native

English   Fluent   *IELTS Certification (2013)*

Computer skills

Advanced   Computer algebra softwares as Macaulay2, Magma and Singular

In data 9/04/2021,

Enrico Fatighenti