

Simon Pepin Lehalleur

Curriculum Vitae

Personal information and contact

Nationality: French

Date of birth : 9th of January 1986

Place of birth : Caen, France

Personal situation: Married, two children

Professional address:

Radboud University
Heyendaalseweg 135
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RESEARCH

Research areas

Algebraic geometry

Arithmetic geometry

Homotopy theory

Research interests

Motivic homotopy theory, relative motives, Grothendieck operations formalism

Relative 1-motives, abelian schemes, Picard schemes, Néron models and related objects

Motives of moduli spaces of bundles

Exponential motives and exponential periods

Motivic vanishing cycles and rigid-analytic motivic homotopy theory

\mathbb{A}^1 -enumerative geometry and Grothendieck-Witt Euler characteristics

Research positions

Postdoc (research group of Prof. Ben Moonen, Radboud University Nijmegen)	2020-
Principal Investigator SPP 1786 (Wissenschaftlicher Mitarbeiter) (research group of Prof. Hélène Esnault, Freie Universität Berlin)	2019-
Postdoc (Wissenschaftlicher Mitarbeiter) (research group of Prof. Hélène Esnault, Freie Universität Berlin)	2018-
Einstein fellowship postdoctoral position (research group of Prof. Hélène Esnault, Freie Universität Berlin)	2016-2018

Ph.D. with Prof. Joseph Ayoub (Universität Zürich), defended 6th of November 2015 Title: “An abelian category of relative 1-motives”	2011-2015
2 years as a Ph.D. student in Paris 13 under the supervision of Prof. Jörg Wildeshaus	2009-2011

Publications

Subgroups of maximal rank of reductive groups, in “Autour des schémas en groupes”, *Panoramas et Synthèses* 47, 2015

On the relative motive of a commutative group scheme (with G.Ancona and A.Huber), *Algebraic geometry*, vol. 3 issue 2, 2016

Triangulated categories of relative 1-motives, *Advances in Mathematics*, vol. 347, 2019

Constructible 1-motives and exactness of realisation functors, *Documenta Mathematica* 24, 1721-1737, 2019

On the Voevodsky motive of the moduli stack of vector bundles on a curve (with V.Hoskins), *The Quarterly Journal of Mathematics*, haaa023

A formula for the Voevodsky motive of the moduli stack of vector bundles on a curve (with V.Hoskins), accepted for publication in *Geometry and Topology*.

On the Voevodsky motive of the moduli space of Higgs bundles on a curve (with V.Hoskins), accepted for publication in *Selecta Mathematica*.

Preprints

Motives of moduli spaces of bundles on curves via variation of stability and flips (with V.Hoskins and L.Fu), arXiv preprint 2011.14872

In preparation

Quadratic Euler characteristics of homogeneous and weighted-homogeneous hypersurfaces and the quadratic Deligne-Milnor problem (with M.Levine), in preparation

Exponential motives I: exponentiation of coefficient systems (with M.Gallauer and J.Fresán), in preparation

Invited research visits

Tokyo Institute of Technology, Tokyo	09/2018
Mittag-Leffler Institute, Stockholm	01/2017
Tata Institute, Mumbai	10/2016

Lecture series/minicourses

Triangulated categories of motivic sheaves, University of Freiburg	02/2020
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Conference talks

A motivic non-abelian Hodge theorem, Higgs bundles and relative topics, online	05/2020
On the motive of the moduli space of Higgs bundles, SPP Jahrestagung, Essen	10/2019
A formula for the motive of the moduli stack of vector bundles, GLEN, Manchester	03/2019
Foliated cohomology at the generic point, Motives, Foliations and the Conservativity conjecture, Berlin	09/2018

E-localisation, Motives, Foliations and the Conservativity conjecture, Berlin	09/2018
E-localisation, Conservativity conjecture workshop (Harumura)	09/2018
The Voevodsky motive of the moduli stack of vector bundles, NoGAGS Berlin	11/2017
Reductive group schemes, Workshop on equivariant and motivic homotopy, Osnabrück	10/2017
The motivic t-structure for relative 1-motives, Annual Meeting of the SPP 1786	03/2017
The motivic t-structure for relative 1-motives, Conference “Generalizations of \mathbb{A}^1 -Homotopy Invariance in Algebraic Geometry and Homotopy Theory”	04/2016
An introduction to motivic homotopy theory, Motivic Homotopy theory day, FU Berlin	03/2016
The Borel-De Siebenthal theorem, Luminy (SGA3 summer school)	09/2011

Seminar talks

Motives of moduli spaces of bundles on curves, Jussieu (Paris)	10/2020
Motives of moduli spaces of bundles on curves, Purdue	10/2020
Constructible 1-motives, Amsterdam	02/2020
A formula for the Voevodsky motive of the moduli stack of vector bundles, Berlin	10/2018
A formula for the Voevodsky motive of the moduli stack of vector bundles over a curve, Tokyo Institute of Technology	09/2018
Triangulated categories of relative 1-motives, University of Illinois Urbana Champaign	03/2018
The Voevodsky motive of the moduli stack of vector bundles, University of Illinois Chicago	03/2018
Constructible 1-motives, KTH Stockholm	02/2018
On the motive of the stack of vector bundles on a curve, Oxford University	02/2018
The Voevodsky motive of the moduli stack of vector bundles, FU Berlin	02/2017
The motivic t-structure for relative 1-motives, Rennes	11/2016
Relative 1-motives, Tata Institute Mumbai	10/2016
Triangulated categories of 1-motivic sheaves, Singapore	08/2016
The motivic t-structure for relative 1-motives, Regensburg	01/2016
The motivic t-structure for relative 1-motives, Freiburg (Oberseminar)	10/2015
Deligne 1-motives in the triangulated categories of mixed motives, Paris Réga	12/2012

RESEARCH GRANTS

SPP 1786, Project “Exponential motivic homotopy theory, foliations and applications”, Principal investigator, 213 600 EUR	2018-2020
Forschungskredit: Candoc, Principal investigator, University of Zürich, 55200 CHF	2013-2014

STUDENT SUPERVISION

Bachelor thesis on “Representations of compact groups and the Peter-Weyl theorem”, Roel Gisolf (UvA)	2020
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Master thesis on “Relative Galois theory of ∞ -topoi and the relative Étale homotopy type”, Louis Martini (F.U Berlin) 2019

Master thesis on “Galois representations attached to modular forms of weight 2”, Dimitri Loutchko (F.U Berlin) 2019

Master thesis on “Model categories and unstable \mathbb{A}^1 -homotopy category”, Viktor Tabakov (F.U Berlin) 2019

Bachelor thesis on “The Étale fundamental group and the regular inverse Galois problem”, Louis Martini (F.U Berlin) 2018

TEACHING

Recent Teaching

Radboud Universiteit/University of Amsterdam (2020-)

Graduate course “Categories and Infinity-categories” WS20

Freie Universität Berlin (2016-2019)

Student seminar “Categories and infinity-categories” WS18

Teaching assistant for “Local Class Field Theory” WS18

Student seminar “Differential Galois Theory” SS18

Teaching assistant for “Complex Analysis” SS18

Graduate course “Models of curves and abelian varieties” SS17

University of Zürich (2011-2015):

Linear Algebra I-II (Bachelor course, Universität Zürich, in German) WS14-SS15

Programming in Python (Bachelor course, Universität Zürich) Winter semester 2013

Differential forms in topology (Masters course, Universität Zürich) Spring semester 2013

Algebraic Geometry (Masters course, Universität Zürich) Winter semester 2012

Probability and statistics for science students (Bachelor course, University Zürich, in German) Spring semester 2012

Linear Algebra and Geometry for teaching students (Bachelor course, University Zürich, in German) Winter semester 2011

Université Paris XIII: (2009-2011):

Mathematics for Computer science (Bachelor course for computer science students, Paris XIII, in French) Spring semester 2011

Linear Algebra (Bachelor course, Paris XIII, in French) Winter semester 2010

ORGANISATION AND SERVICE

Conference organisation

Co-organisation of Arbeitsgemeinschaft “Motives, Foliations and the Conservativity Conjecture” (Humboldt University) 24/09/18-28/09/18

Co-organisation of summer school “Motives for periods” (FU Berlin) 28/08/2017-1/09/2017

Seminar organisation

Organised seminar on “Hilbert schemes of points on surfaces”	Spring 2020
Supervised seminar on “Motivic Galois groups and periods” in Prof. Esnault’s research group	2016
Co-organised the Graduate Colloquium of the Graduate School of Mathematics of Zürich	2013-2014

PhD defense committees

Matej Filip (FU Berlin)	09.03.2018
Irem Portakal (FU Berlin)	27.04.2018
Eva Martinez (FU Berlin)	29.06.2018

Hiring committees

Hiring committees for several postdocs in the research group of Prof. Esnault	2016-2019
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Referee work

Refereed for Advances in Mathematics, Annales scientifiques de l’ENS, Tohoku mathematical journal, Mémoires de la Société Mathématique de France.

Zentralblatt and Mathreviews

Reviewed 8 papers for Zentralblatt and Mathreviews.

EDUCATION

Master in mathematics with distinction in University Paris 7 Denis Diderot	2008
“Agrégation de Mathématiques”	2007
Bachelor in mathematics with distinction, université Paris 11 Orsay	2006
Passed the competitive examination to enter the Ecole Normale Supérieure	2005
Participated in the International Mathematical Olympiads	2003
”Concours Général de mathématiques”, Paris, 3rd place	2003

LANGUAGES

Languages

French : native
English : written, spoken (fluent)
Spanish : written, spoken (near-fluent)
German : written, spoken (B2)