

Curriculum vitæ

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RESEARCH INTERESTS

Category theory and everything about it.

- Stable ∞ -categories
- Homotopical algebra
- Groth(endieck) derivators
- 2-categories and formal category theory
- locally presentable and accessible categories
- type theory and functional programming.

PRESENT POSITION

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| 1 Postdoctoral fellow
IoC Tallinn EE | Jan 2020 — |
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PAST POSITIONS

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| 1 Postdoctoral fellow
CMUC Coimbra PT | Jul 2019 Dec 2019 |
| 2 Postdoctoral fellow
Max Planck Institute for Mathematics Bonn D | Sep 2018 Feb 2019 |
| 3 Postdoctoral fellow
Masaryk University Brno CZ | Mar 2017 Apr 2018 |
| 4 Postdoctoral fellow and Assistant Professor
University of Western Ontario London CA | Sep 2016 Nov 2016 |

EDUCATION

2008 | 2012

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| 1 Ph.D. in Mathematics
SISSA Trieste
<i>thesis: t-structures on stable ∞-categories</i> | Oct 2012 Jun 2016 |
| 2 M.Sc. in Mathematics
Università degli studi di Padova
<i>thesis: Orlov reconstruction theorem</i> | Oct 2010 Jul 2012 |
| 3 B.Sc. in Mathematics
Università degli studi di Padova
<i>thesis: Monads and Beck's theorem</i> | Jan 2008 Jun 2010 |

PUBLICATIONS

- 1 | **Factorization systems on (stable) derivators** w/S. Virili |
1705.08565v3 | to appear on JoA
- 2 | **Categorical notions of fibration** w/E. Riehl |
1806.06129 | *Expos. Math.* (2019) | doi:10.1016/j.exmath.2019.02.004
- 3 | **Hearts and towers in stable infinity-categories** w/D. Fiorenza, G. Marchetti |
1501.04658 | *Journal of Homotopy and Related Structures* 2019 | doi:10.1007/s40062-019-00237-0
- 4 | **A standard theorem on adjunctions in two variables**
1902.06074 | *Preprints of the MPIM*, 2018 (67)
- 5 | **A Fubini rule for ∞ -coends**
1902.06086 | *Preprints of the MPIM*, 2018 (68)
- 6 | **Homotopical Algebra is not concrete** w/I. Di Liberti |
1704.00303 | *Journal of Homotopy and Related Structures* (2017): 1-15 | doi:10.1007/s40062-018-0197-3
- 7 | **Sober Ontic Structural Realism and Yoneda lemma**
abstract at the *Triennial conference of the SILFS*, Bologna
- 8 | **Coend calculus**
based on 1501.02503v4 | book to appear for Cambridge University Press (2020?)
- 9 | **t-structures are normal torsion theories** w/D. Fiorenza |
1408.7003 | *Applied Categorical Structures* 24.2 (2016): 181-208 | doi:10.1007/s10485-015-9393-z

PREPRINTS

- 1 | **On the unicity of formal category theories** w/I. Di Liberti |
1901.01594v1 | Submitted to TAC, January 2019
- 2 | **Accessibility and presentability in 2-categories** w/I. Di Liberti |
1804.08710v4 | Submitted to JPAA, January 2019
- 3 | **Localization theory for derivators**
1802.08193v1 | Submitted to TAC, March 2018
- 4 | **Recollements in stable ∞ -categories** w/D. Fiorenza |
1507.03913v2

TALKS

- 1 | **The art of \int** Dec 2019
Invited speaker | ItaCa - Italian Category theorists conference
- 2 | **Axiomatic cohesion of toposes** Dec 2019
Invited speaker | Università "La Sapienza" - Rome
- 3 | **The formal category theory of derivators** Apr 2019
Invited speaker | Workshop on Derivators - Regensburg
- 4 | **On the unicity of the formal theory of categories** Dec 2018
Talk on 1901.01594 | ULB - Bruxelles
- 5 | **Accessibility and Presentability in 2-categories** Nov 2018
Talk on 1804.08710 | Università degli studi di Torino
- 6 | **Homotopical algebra is not concrete** Sep 2017
Contributed talk | *British Topology Meeting* | Leicester

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| 7 The formal category theory of derivators
Invited speaker <i>Some trends in Algebra</i> Prague | Sep 2017 |
| 8 Sober Ontic Structural Realism
Invited speaker <i>SILFS</i> Bologna | Jun 2017 |
| 9 Model categories
Invited speaker <i>A categorical day in Turin</i> Torino | May 2017 |
| 10 <i>t</i>-derivators
Invited speaker <i>Young researchers in homotopy theory</i> , Bonn | Feb 2017 |
| 11 Coend calculus
Lectures on 1501.02503 Leeds | May 2016 |

TEACHING & ORGANIZATIONAL ACTIVITIES

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| 1 appointee for Adjoint school 2019
A webinar and online applied Category Theory reading course. The project name is <i>Traversal optics and profunctors</i> . In functional programming, optics are ways to zoom into a specific part of a given data type and mutate it. Optics come in many flavors such as lenses and prisms and there is a well-studied categorical viewpoint, known as profunctor optics. Of all the optic types, only the traversal has resisted a derivation from first principles into a profunctor description. We aim to find such characterization. | Mar 2019 |
| 2 2-categories
A short course on 2-dimensional category theory. Tentative program: monoidal and enriched categories, the calculus of coends and Kan extensions, 2-categories, the bicategory of profunctors, the 2-category of derivators, 2-dimensional limits, the formal theory of monads, formal category theory. | Padova - IT |
| 3 PSSL 103 - Brno
I have been one of the organizers of 103rd Peripathetic Seminar on Sheaves and Logic. | MU Brno - CZ |
| 4 Formal category theory
A series of lectures having the scope to breach in Riehl-Verity's theory of ∞ -cosmoi. | MU Brno - CZ |
| 5 Elements of Finite Mathematics
Techniques of counting, probability, discrete and continuous random variables. | UWO London - CA |
| 6 Homotopical Algebra
A bottom-up introduction to the language of Homotopical Algebra | MU Brno - CZ |
| 7 appointee for Kan Extension Seminar I
A webinar and online Category Theory reading course. | Jan 2014 Jul 2014 |
| 8 supervisor and coadvisor B.Sc. in Mathematics
<i>Adjoint Functors</i> amslaurea.unibo.it | student: Giovanni Ronchi |

OTHER ACTIVITIES

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| 1 Sparse skills
I like the art of crafting books and drawing maps; this is not unrelated to my love for Mathematics. I am a pretty decent TeXnic (I maintain this CV as a github repo here). I know bits of Haskell, Python, and Wolfram. I like artificial languages (mi ŝatus verki vortaron al matematiko, kun terminoj el teoria kategorioj); again, this is not unrelated to my love for Mathematics. |
| 2 Reviewer for
zbMath, AMS Math. Rev. |

Foto Loregia