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

1 | **Postdoctoral fellow**   Jan 2020 |
IoC | Tallinn EE

2 | **Postdoctoral fellow**   Jul 2019 | Dec 2019
CMUC | Coimbra PT

Past positions

1 | **Postdoctoral fellow**   Sep 2018 | Feb 2019
Max Planck Institute for Mathematics | Bonn D

2 | **Postdoctoral fellow**   Mar 2017 | Apr 2018
Masaryk University | Brno CZ

3 | **Postdoctoral fellow and Assistant Professor**   Sep 2016 | Nov 2016
University of Western Ontario | London CA

Education   2008 | 2012

1 | **Ph.D. in Mathematics**   Oct 2012 | Jun 2016
SISSA | Trieste
thesis: *t-structures on stable ∞-categories*

2 | **M.Sc. in Mathematics**   Oct 2010 | Jul 2012
Università degli studi di Padova
thesis: *Orlov reconstruction theorem*

3 | **B.Sc. in Mathematics**   Jan 2008 | Jun 2010
Università degli studi di Padova
thesis: *Monads and Beck's theorem*

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, Max-Planck-Institut für Mathematik Preprint Series 2018 (67)

5 | **A Fubini rule for ∞-coends**
   1902.06086 | Preprints of the MPIM, Max-Planck-Institut für Mathematik Preprint Series 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 formal category theory of derivators** Apr 2019
   Invited speaker | Workshop on Derivators - Regensburg

2 | **On the unicity of the formal theory of categories** Dec 2018
   Talk on 1901.01594 | ULB - Bruxelles

3 | **Accessibility and Presentability in 2-categories** Nov 2018
   Talk on 1804.08710 | Università degli studi di Torino

4 | **Homotopical algebra is not concrete** Sep 2017
   Contributed talk | *British Topology Meeting* | Leicester

5 | **The formal category theory of derivators** Sep 2017
   Invited speaker | *Some trends in Algebra* | Prague

6 | **Sober Ontic Structural Realism** Jun 2017
   Invited speaker | *SILFS* | Bologna

7 | Model categories	May 2017

Invited speaker | *A categorical day in Turin* | Torino

8 | t-derivators	Feb 2017

Invited speaker | *Young researchers in homotopy theory*, Bonn

9 | Coend calculus	May 2016

Lectures on 1501.02503 | Leeds

TEACHING & ORGANIZATIONAL ACTIVITIES

1 \| appointee for Adjoint school 2019   Mar 2019 |

A webinar and online applied Category Theory reading course. The project name is *Traversal optics and profunctors*. 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. This project aims to do just this.

2 \| 2-categories   Padova - IT

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.

3 \| PSSL 103 - Brno   MU Brno - CZ

I have been one of the organizers of 103rd Peripathetic Seminar on Sheaves and Logic.

4 \| Formal category theory   MU Brno - CZ

A series of lectures having the scope to breach in Riehl-Verity's theory of ∞-cosmoi.

5 \| Elements of Finite Mathematics   UWO London - CA

Techniques of counting, probability, discrete and continuous random variables.

6 \| Homotopical Algebra   MU Brno - CZ

A bottom-up introduction to the language of Homotopical Algebra

7 \| appointee for Kan Extension Seminar I   Jan 2014 | Jul 2014

A webinar and online Category Theory reading course.

8 \| supervisor and coadvisor B.Sc. in Mathematics   *student: Giovanni Ronchi*
Adjoint Functors | amslaurea.unibo.it

9 \| supervisor and coadvisor B.Sc. in Physics   *student: Davide Bosetti*
Bohr toposes | Università di Milano Bicocca

OTHER ACTIVITIES

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.