

Curriculum vitæ

last updated **February 16, 2020**

fosco.loregian@gmail.com
fouche@yoneda.ninja

Fosco Loregian
github.com/tetrapharmakon
fosco.loregian



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.

Currently working on: coend calculus; bicategories of generalised profunctors as an axiomatisation of integral kernels; profunctor algebras in functional programming; bicategories of profunctors seen as universal semantics for 2-dimensional algebraic theories (in the large); teaching category theory to computer scientists; ontology, mereology and the Yoneda lemma: a novel view on the identity principle; formal category theory.

CURRENT POSITION

1 | **Postdoctoral fellow**

Tallinna Tehnikaülikooli Küberneetika Instituut | Tallinn EE

Jan 2020 | —

PAST POSITIONS

1 | **Postdoctoral fellow**

Centro de Matemática da Universidade de Coimbra | Coimbra PT

Jul 2019 | Dec 2019

2 | **Postdoctoral fellow**

Max-Planck-Institut für Mathematik | Bonn D

Sep 2018 | Feb 2019

3 | **Postdoctoral fellow**

Masarykova univerzita | 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

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

PUBLICATIONS

- | | |
|--|-----------------------------|
| 1 Triangulated factorization systems and t-structures
1705.08565v3 <i>Journal of Algebra</i> doi:10.1016/j.jalgebra.2019.12.021 | w/S. Virili |
| 2 Categorical notions of fibration
1806.06129 <i>Expos. Math.</i> (2019) doi:10.1016/j.exmath.2019.02.004 | w/E. Riehl |
| 3 Hearts and towers in stable infinity-categories
1501.04658 <i>Journal of Homotopy and Related Structures</i> 2019 doi:10.1007/s40062-019-00237-0 | w/D. Fiorenza, G. Marchetti |
| 4 A standard theorem on adjunctions in two variables
1902.06074 <i>Preprints of the MPIM</i> , 2018 (67) | |
| 5 A Fubini rule for ∞-coends
1902.06086 <i>Preprints of the MPIM</i> , 2018 (68) | |
| 6 Homotopical Algebra is not concrete
1704.00303 <i>Journal of Homotopy and Related Structures</i> (2017): 1-15 doi:10.1007/s40062-018-0197-3 | w/I. Di Liberti |
| 7 Sober Ontic Structural Realism and Yoneda lemma
abstract at the <i>Triennial conference of the SILFS</i> , Bologna | |
| 8 Coend calculus
based on 1501.02503v4 book to appear for Cambridge University Press (2020?) | |
| 9 t-structures are normal torsion theories
1408.7003 <i>Applied Categorical Structures</i> 24.2 (2016): 181-208 doi:10.1007/s10485-015-9393-z | w/D. Fiorenza |

PREPRINTS

- | | |
|---|---------------------|
| 1 Profunctor optics, a categorical update
2001.07488 | w/B. Clarke, et al. |
| 2 On the unicity of formal category theories
1901.01594v1 Submitted to TAC, January 2019 | w/I. Di Liberti |
| 3 Accessibility and presentability in 2-categories
1804.08710v4 Submitted to JPAA, January 2019 | w/I. Di Liberti |



- 4 | **Localization theory for derivators**
1802.08193v1 | Submitted to TAC, March 2018
- 5 | **Recollements in stable ∞ -categories**
1507.03913v2

w/D. Fiorenza |

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

TEACHING & ORGANIZATIONAL ACTIVITIES

- 1 |  **ITI9200 - Introduction to Category Theory** Jan 2020 | Jun 2020
Introduction to Category Theory and its Applications (Sissejuhatus kategooriateooriasse ja selle rakendustesse).
- 2 |  **appointee for Adjoint school 2019** Mar 2019 | Jun 2019
A webinar and online applied Category Theory reading course. The project name is *Traversal optics and profunctors*. Led to the development of arXiv:2001.07488.

- 3 | 🎓 **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.
- 4 | 🏢 **PSSL 103 - Brno** MU Brno - CZ
I have been one of the organizers of 103rd Peripathetic Seminar on Sheaves and Logic.
- 5 | 🎓 **Formal category theory** MU Brno - CZ
A series of lectures having the scope to breach in Riehl-Verity's theory of ∞ -cosmoi.
- 6 | 🎓 **Elements of Finite Mathematics** UWO London - CA
Techniques of counting, probability, discrete and continuous random variables.
- 7 | 🎓 **Homotopical Algebra** MU Brno - CZ
A bottom-up introduction to the language of Homotopical Algebra
- 8 | 🏢 **appointee for Kan Extension Seminar I** Jan 2014 | Jul 2014
A webinar and online Category Theory reading course.
- 9 | 🎓 **supervisor and coadvisor B.Sc. in Mathematics** *student: Giovanni Ronchi*
Adjoint Functors | amslaurea.unibo.it

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.

Foto Loregian