Ivan Di Liberti

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Appointments

Postdoc — *Prague, Czech Republic*

Czech Academy of Sciences, Institute of Mathematics — *Jul 2020 - Present*

Grant: GX20-31529X
Coordinator: Wiesław Kubiś

Education

Ph.D. in Mathematics — *Brno, Czech Republic*

Masaryk University — *Feb. 2017 - Sept. 2020*

Dissertation: The Scott Adjunction
Advisor: Jiří Rosický

MSc in Mathematics — *Pisa, Italy*

Università di Pisa — *Mar. 2015 - Dec. 2016*

Dissertation: A survey on Barr's Theorem
Advisors: Nicola Gambino, Alessandro Berarducci

BSc in Mathematics — *Pisa, Italy*

Università di Pisa — *Sept. 2011 - Mar. 2015*

Dissertation: Definable groups in o-minimal structures
Advisor: Alessandro Berarducci

Publications

2021 **Towards Higher Topology**, Journal of Pure and Applied Algebra, 10.1016/j.jpaa.2021.106838.

2021 **Functorial Semantics for Partial Theories**, Symposium on Principles of Programming Languages (POPL21), 10.1145/3434338. *j/w Loregian, Nester, Sobocinski*

2020 **Codensity: Isbell duality, pro-objects, compactness and accessibility**, Journal of Pure and Applied Algebra, 10.1016/j.jpaa.2020.106379

2020 **Gabriel-Ulmer duality for topoi and its relation with site presentations**, Applied Categorical Structures, 10.1007/s10485-020-09605-x *j/w Julia Ramos González*

2019 **Weak saturation and weak amalgamation property**, Journal of Symbolic Logic, 10.1017/jsl.2019.45

2018 **Homotopical Algebra is not concrete**, Journal of Homotopy and Related Structures, 10.1007/s40062-018-0197-3 *j/w Fosco Loregian*

Preprints

2021 **Exponentiable Grothendieck categories in flat Algebraic Geometry**, arXiv:2103.07876. Submitted to Journal of the London Mathematical Society. *j/w Julia Ramos González*

2020 **Formal Model Theory & Higher Topology**, arXiv:2010.00319. Submitted to Journal of Mathematical Logic.

2020 **General facts on the Scott Adjunction**, arXiv:2009.14023. Submitted to Applied Categorical Structures.

2020 **Enriched locally generated categories**, arXiv:2009.10980. Submitted to Journal of Pure and Applied Algebra. *j/w Jiří Rosický*

2019 **On the unicity of formal category theories**, arXiv:1901.01594. Under revision. *j/w Fosco Loregian*

2018 **Accessibility and Presentability in 2-categories**, arXiv:1804.08710. Under revision. *j/w Fosco Loregian*

Teaching

2021 **Sheaves, Manifolds and Cohomology**, Lecturer, Charles University, Prague, Czechia. *j/w Andrea Gagna*
2020 **Category Theory**, Lecturer, Institute of Mathematics, Czech Academy of Sciences, Prague, Czechia.
2020 **Topology**, Teaching Assistant, Masaryk University, Brno, Czechia.
2019 **Topics in Category Theory**, Lecturer, Masaryk University, Brno, Czechia. *j/w John Bourke*
2019 **Topology**, Teaching Assistant, Masaryk University, Brno, Czechia.
2018 **Topics in Category Theory**, Lecturer, Masaryk University, Brno, Czechia. *j/w John Bourke*
2017 **Rings and Modules**, Teaching Assistant, Masaryk University, Brno, Czechia.

Supervision

SIGPLAN long-term mentorship program, The SIGPLAN long-term mentorship program. helps junior researchers and master students to form long-term connections in the programming languages community, and to access the perspectives of researchers from other institutions. Since Summer 2021 I am mentor in this project.
Vít Jelínek, bachelor thesis in Computer Science, Masaryk University, Brno, Czechia, in progress.

Invited Talks

2021 **Formal Model Theory and Higher Topology**, Seminar Lecture, Yorkshire and Midlands Category Theory Seminar (YaMCATS), online.
2020 **Enriched locally generated categories**, MUNI Algebra Seminar, Masaryk University, Brno, Czechia.
2020 **Formal Model Theory and Higher Topology**, HoTT Seminar, Carnegie Mellon University, Pittsburgh, USA.
2020 **Formal Model Theory and Higher Topology**, Seminar Lecture, University of Ottawa, Ottawa, Canada.
2020 **Formal Model Theory and Higher Topology**, Seminar Lecture, Taltec, Tallin, Estonia.
2019 **Topos theoretic approaches to formal model theory**, Seminar Lecture, Institute de recerche et informatique fondamentale, Paris, France.
2019 **Topos theoretic approaches to formal model theory**, Seminar Lecture, Technische Universität Wien, Wien, Austria.
2019 **A specialization of Gabriel Ulmer duality for Grothendieck topoi**, Seminar Lecture, Universiteit Antwerpen, Antwerp, Belgium.
2018 **Morita theories and 2-dimensional dualities of Stone-type**, Seminar Lecture, Università di Milano, Milan, Italy.
2018 **The shape of water: Homotopical algebra and set functors**, Seminar Lecture, Max Plank institut, Bonn, Germany.

Invited Visits

2019 **Institute de recerche et informatique fondamentale (IRIF), Paris**, Collaboration with prof. Sam van Gool.
2019 **Antwerp University**, Collaboration with Julia Ramos Gonzalez.
2018 **Max Plank Institute, Bonn**, Collaboration with Fosco Loregian.

Selected Conferences

2021 **Enriched Locally Generated Categories**, University of Genova, Category Theory 2020->2021.
2021 **Formal Model Theory and Higher Topology**, Online, Logic Colloquium 2021.
2021 **Towards higher Topology**, Online, Toposes Online.
2019 **The Scott Adjunction**, University of Edinburgh, Category Theory 2019.
2018 **An axiomatic approach to Gabriel Ulmer duality**, University of Azores, Category Theory 2018.
2017 **Weak saturation and weak amalgamation property**, University of Leeds, Peripatetic Seminar on Sheaves and Logic 101.

Service

ItaCa, Promoting Committee, ItaCa is the Italian community of category theory. The project was founded by Giuseppe Metere in 2019. I was invited by Andrea Montoli to join the Programme commettee of ItaCa 1, the first official meeting of the commutiny. The event took place at the University of Milano, the webpage of the event is still available at this link. Since this invitation I have been an active member of ItaCa. In the same year I was invited to join the Program Commetee of ItaCa Fest. ItaCa Fest is a webinar aimed to gather the community of ItaCa. Click here to visit the webpage of the Fest. Since January 2021 I am one of the members of the Promoting Committee, this is the coordinating committee of the entire project.

Bohemian Logical & Philosophical Café, Founder, Scientific commettee and Coordinator, Since my arrival at the Maths Institute of the Czech Academy of Sciences I promoted and I have been the general coordinator of a new initiative of webinars in emerging topics in logic. The project has a quite broad scope and is willing to encompass a variety of subjects: theoretical computer science, category theory, mathematical logic, and philosophy. More information is available here.

Masaryk University Algebra Webinar, Founder and main organizer until July 2020, During pandemics I promoted to transform the local Algebra permanent seminar of Masaryk University into a permanent webinar. Especially at the beginning the whole organization was upon myself, many of the first speakers were directely suggested by me. I maintained the webpage and the youtube channel until the end of my PhD studied. Nowadays the webpage and youtube channel are maintained by John Bourke.

Peripatetic Seminar on Sheaves and Logic 103, Promoter and Coordinator, PSSL103 is a Peripatetic event in Categorical Logic. During my first year of PhD (2018) I promoted an instance of this tradition in Masaryk University. Having the approval of my advisor and Peter Johnstone, I was in charge of the organization. I coordinated the effort of other researchers, such as John Bourke, Simon Henry, Fosco Loregian and Micheal Lieberman. The webpage of the event is not online anymore, but the event is listed in this webpage.

Referee, In February 2021 I was a referee for the journal Compositionality. In Summer 2021 I was reviewer for the 37th Conference on Mathematical Foundations of Programming Semantics.

Thesis Reader at Masaryk University, Masaryk University evaluation process for Bachelor and Master thesis is based on a double review system. One review comes from the advisor of the student and another one comes from an internal opponent. Both the reviews must describe, discuss and finally score the thesis from A to F. During my PhD studies I was three times opponent for bachelor theses. 2019: Yuriy Dupyn, Algebraic Structures. 2018: Jan Jurka, Locally presentable categories. 2018: Vladislav Demenchuk, Elements of nonstandard analysis.

MathOverflow, top 5 % user, MathOverflow is a mathematics question-and-answer (Q&A) website, which serves as an online community of researchers in mathematics. It allows users to ask questions, submit answers, and rate both, all while getting merit points for their activities. It is a part of the Stack Exchange Network and has an internal rating system based on the reputation gained by the users within the website. Here is my profile webpage.