Curriculum Vitae

Olivia Caramello

Date of birth: 29 November 1984

Nationality: Italian

Sex: Female

Work addresses:

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Education

10/2006 - 09/2009	Ph.D. in Mathematics, Trinity College, University of Cambridge (U.K.) Thesis entitled "The Duality between Grothendieck Toposes and Geometric Theories" (303 pages) Supervisor: Prof. Peter Johnstone
2004-2006	Master's Degree in Mathematics, University of Turin, Final mark: 110/110 cum laude with honourable mention (maximum mark of 30/30 cum laude in all the exams of the course of study)
2001-2004	Bachelor's Degree in Mathematics, University of Turin, Final mark: 110/110 cum laude
2004	Piano Diploma, Conservatory of Cuneo

In 2004, I was one of the youngest graduates in Italy, having obtained my Bachelor's Degree in Mathematics and my Piano Diploma at the age of 19.

Academic positions

01/10/2022 - present	Coordinator of the "Centre for Topos Theory and its Applications" of the Grothendieck Institute
01/06/2020 - present	Associate Professor at the Department of Science and High Technology of the University of Insubria – Como
1/09/2023 - present	Chercheur associé, Laboratoire MICS, CentraleSupélec, University of Paris-Saclay (France)
10/03/2022 - present	President (and co-founder) of the Istituto Grothendieck
01/01/2020 - 31/12/2022	Holder of the Gelfand Chair, IHES, University of Paris-Saclay

01/06/2017 - 31/05/2020	Researcher (type B) at the Department of Science and High Technology of the University of Insubria - Como
01/12/2016 - 31/05/2017	Post-doctoral fellow, IHÉS (France)
01/06/2016 - 30/11/2016	Marie Curie INdAM-COFUND fellow at the University of Milan
01/12/2014 - 31/05/2016	Marie Curie INdAM-COFUND fellow at the University of Paris 7 (France)
01/12/2013 - 30/11/2014	Post-doctoral fellow, IHÉS (France)
10/2013 - 11/2013	Research visitor, Max Planck Institute for Mathematics (Germany)
10/2010 - 09/2013	Research Fellow, Jesus College, University of Cambridge (U.K.)
10/2009 - 09/2010	Post-doctoral researcher (Junior Visitor), Centro Di Ricerca Matematica Ennio De Giorgi, Scuola Normale Superiore of Pisa

I founded, in March 2022, the Grothendieck Institute ("Istituto Grothendieck ETS"), an Italian foundation devoted to interdisciplinary research in the mathematical sciences (see www.igrothendieck.org for more information). I am the President of the Institute as well as the Coordinator of its Centre for Topos Theory and its Applications.

Qualifications

2023	Obtained the Italian National qualification to be Full Professor in the sector 11/C2 ("Logic, History and Philosophy of Science")
2018	Obtained the Italian National qualification to be Full Professor in the sector 01/A1 ("Mathematical logic and Complementary Mathematics").
2017	Obtained the *Qualification aux fonctions de Professeur des universités* (France)
2016	Obtained the *Habilitation à diriger des recherches* at the University of Paris 7 (France) on 14 December 2016, with a habilitation thesis entitled "Grothendieck toposes as unifying 'bridges' in Mathematics" (President of the Jury: Prof. Alain Connes). More information is available at http://www.oliviacaramello.com/Papers/Papers.htm#HDR
2013	Obtained the Italian National qualification to be Associate Professor in Mathematical Logic (sector: MAT/01) - Renewed in 2017
2013	Obtained the *Qualification aux fonctions de maître de conférences* (France)

Invited research visits

15/01/2025 - 14/07/2025	D'Alembert Visiting Chair, University of Paris-Saclay
1/03/2024 - 30/04/2024	Visiting Professor, CentraleSupélec, University of Paris-Saclay (France)
15/02/2024 - 16/06/2024	Visitor at the Lagrange Mathematics and Computing Research Center, Paris
9/07/2023 - 26/07/2023	Visitor at BIMSA (China)
15/02/2023 - 15/06/2023	Visitor at the Lagrange Mathematics and Computing Research Center, Paris
25/09/2022 - 1/10/2022	Visitor at ETH (Zurich)
1/02/2022 - 30/04/2022	Visitor at the Lagrange Mathematics and Computing Research Center, Paris
14/02/2019 - 31/03/2019	Visitor to IHÉS (France)

20/01/2018 - 15/04/2018	Visitor to IHÉS (France)
1/06/2017 - 31/07/2017	Visitor to IHÉS (France)
14/12/2014 - 21/12/2014	Visitor to the University of Milan
18/04/2014 - 11/07/2014	CARMIN Visitor at IHP (France)
10/03/2014 - 06/04/2014	Visitor to the University of Milan
02/03/2014 - 09/03/2014	Visitor to the University of Salerno
27/04/2013 - 04/05/2013	Visitor to the Institute for Advanced Study, Princeton (U.S.A.)
14/01/2013 - 15/02/2013	Visitor to the Institut de Mathématiques de Jussieu (University of Paris 6 and 7, France)
09/12/2012 - 21/12/2012	Visitor to the University of Milan
03/10/2011 - 03/11/2011	Visitor to IHÉS (France)

I also visited the IHÉS in 2020, 2021 and 2022 as the holder of the Gelfand Chair.

Awards, prizes and scholarships

2024	Award of a D'Alembert visiting chair at the Université Paris-Saclay (for the second semester of the academic year 2024/2025)
2020	Award of a grant from Huawei for a research project entitled "Grothendieck toposes for information and computation" at the University of Insubria
2019	Winner of the IHÉS "Gelfand Chair" (first woman to hold a Chair at the Institute)
2018	The École Polytechnique organised a study group on some of my papers
2017	Winner of a position in the Italian international rectruitment program for young researchers "Rita Levi Montalcini" (of the Italian Ministry of University and Research)
2017	Offer of a permanent position ("Lectureship in Pure Mathematics") at the University of Durham (U.K.) - declined
2014	Winner of a fellowship "*L'Oréal-UNESCO Pour les Femmes et la Science* - in partnership with the *Académie des Sciences*" (only mathematician in the 'post-doc' category)
2014	First place in the INdAM COFUND 'Outgoing' Marie Curie Fellowship competition
2011	Winner of the 2010 AILA Award (for the best Ph.D. thesis in Mathematical Logic written by an Italian mathematician in the years 2008-2010)
2009	Junior Visiting Position, Ennio De Giorgi Mathematical Research Centre of the Scuola Normale Superiore of Pisa for the academic year 2009/2010 (fellowship fully funded by the Centre)
2009	Three-year Research Fellowship at Jesus College, University of Cambridge (U.K.) (started in October 2010)
2008	Invited participant (fully funded by the EPSRC) in the LMS Durham Symposium *New Directions in the Model Theory of Fields*, 20-30 July 2009 (U.K.)
2008	Winner of the First Prize in the Edith Leigh Piano Competition 2008, Trinity College, Cambridge (U.K.)
2007	Selected as representative of Italy at the *Korea-Europe Next-Generation Leaders Program 2007* (Seoul, South Korea)

2007, 2008	Invited as a member of the jury of the "Pirelli *Internetional* Award", Rome
2006	Winner of the three-year Prince of Wales Scholarship from Trinity College, Cambridge (U.K.)
2006	Offered the status of "Honorary Cambridge European Trust Scholar", University of Cambridge (U.K.)
2006	Offer of admission with full funding (Scatcherd European Scholarship and EPSRC scholarship) to the PhD in Mathematics at the University of Oxford (U.K.)
2006	Offer of admission with full funding to the PhD in Mathematics at the Massachusetts Institute of Technology (U.S.A.)
2004, 2006	Winner of the 'Optime Prize' (for both degrees in Turin, offered by the Unione Industriale di Torino to the best graduates of the University of Turin)
2001-2004	National level scholarship offered by the National Institute of Higher Mathematics

Books

O. Caramello, "*Theories, Sites, Toposes: relating and studying mathematical theories through topos-theoretic 'bridges'*", 384 pages, Oxford University Press (2017)

O. Caramello and L. Lafforgue, "*Sites et topos de Grothendieck : une introduction*", 611 pages*,* arXiv:math.CT/2508.21609 (2025)

Research monographs in preparation

O. Caramello, *Denseness conditions, morphisms and equivalences of toposes,* arXiv:math. CT/1906.08737 (2020), 168 pages (current version to be uploaded soon: 250 pages)

O. Caramello and R. Zanfa, *Relative topos theory via stacks*, arXiv:math.AG/2107.04417 (2021), 204 pp.

O. Caramello, *A topos-theoretic approach to Stone-type dualities*, arXiv:math.CT/1006.3930 (2011), 158 pages (extended version submitted for publication to Cambridge University Press)

O. Caramello and L. Lafforgue, *Engendrement de topologies de Grothendieck, démontrabilité et opérations sur les sous-topos*, arXiv:math.CT/2508.21134 (2025), 249 pages

Theses

- *The Duality between Grothendieck Toposes and Geometric Theories*, PhD thesis in Mathematics at the University of Cambridge (U.K.), 2009, 303 pp.

- *Grothendieck toposes as unifying 'bridges' in Mathematics,* habilitation thesis *(mémoire d'habilitation à diriger des recherches)* at the University of Paris 7 (France), 2016, 102 pages (available at http://www.oliviacaramello.com/Unification/HDROliviaCaramello.pdf)

Publications and preprints

1. *On fibred products of toposes* (with L. Bartoli)*,* arXiv:math.CT/2509.07719, 54 pages (2025)
2. *Sheaves on bicategories* (with E. Pivet), arXiv:math.CT/2507.20820, 73 pages (2025)
3. *Morphisms and comorphisms of sites II -- Distributors of sites* (with A. Osmond), arXiv:math.CT/2507.20932, 23 pages (2025)

4. *Local fibrations and relative Diaconescu's theorem* (with L. Bartoli),
   arXiv:math.CT/2507.14379, 88 pages (2025)
5. *De Morgan's law in toposes I* (with Y. Chamoun), arXiv:math.CT/2507.01869, 51 pages (2025)
6. *Morphisms and comorphisms of sites I -- Double categories of sites* (with A. Osmond),
   arXiv:math.CT/2505.08766, 38 pages (2025)
7. *On a (terminally connected, pro-etale) factorization of geometric morphisms* (with A. Osmond),
   arXiv:math.CT/2502.04213, 39 pages (2025)
8. *The "unifying notion" of topos,*
   chapter in the book *The Mathematical and Philosophical Legacy of Alexander Grothendieck* (Springer-Birkhauser), 31 pages, 2025 - translation of the article "La "notion unificatrice" de topos (see n. 11 below)
9. *On morphisms of relative toposes* (with L. Bartoli),
   arXiv:math.AG/ 2310.20691, 47 pages (2023)
10. *Fibred sites and existential toposes*,
    arXiv:math.AG/2212.11693, 45 pages (2022), accepted for publication in the *Annals of Pure and Applied Logic*
11. *The over-topos at a model* (with A. Osmond),
    Theory and Applications of Categories 39 (15), 447-492 (2023)
12. *Deductive systems and Grothendieck topologies,* abstract in the Dagstuhl Seminar Report 21472 "Geometric Logic, Constructivisation, and Automated Theorem Proving" (2022) (available online at the address https://doi.org/10.4230/DagRep.11.10.151)
13. *Grothendieck toposes as unifying 'bridges': a mathematical morphogenesis*, chapter in the book "Philosophy of Mathematics. Objects, Structures, and Logics", Springer (2022)
14. *The unification of Mathematics via Topos Theory,* in the book "Logic in Question. Talks from the Annual Sorbonne Logic Workshop (2011- 2019)", Studies in Universal Logic Series, Birkhäuser (2022); Russian translation available as arXiv:math.CT/1104.0563
15. *La "notion unificatrice" de topos,* 40 pages, in the Proceedings volume of the "Lectures Grothendieckiennes" at the École Normale Superieure, Paris (Spartacus and SMF, 2021).
16. *General affine adjunctions, Nullstellensätze, and dualities* (with V. Marra and L. Spada), *Journal of Pure and Applied Algebra,* Vol. 225. 1-34 (2021)
17. *On the dependent product in toposes* (with R. Zanfa),
    Mathematical Logic Quarterly 67 (3), 282-294 (2021)
18. *Some aspects of topological Galois theory* (with L. Lafforgue), *Journal of Geometry and Physics* 142 (2019) 287-317 (as part of the Proceedings volume of the conference 'NCG 2017: Connes' 70th birthday celebration')
19. *Syntactic categories for Nori motives* (with L. Barbieri-Viale and L. Lafforgue),
    Selecta Mathematica 24 (4), 3619-3648 (2018)
20. *On the geometric theory of local MV-algebras* (with A. C. Russo),
    Journal of Algebra 479 , 263-313 (2017)
21. *Cyclic theories* (with N. Wentzlaff)
    Applied Categorical Structures 25 (1), 105-126 (2017)
22. *Sur la dualité des topos et de leurs présentations et ses applications : une introduction* (with L. Lafforgue), available at http://preprints. IHÉS.fr/2016/M/M-16-26.pdf (2016), 61 pp.
23. *Lattice-ordered abelian groups and perfect MV-algebras: a topos-theoretic perspective* (with A. C. Russo),
    Bulletin of Symbolic Logic 22 (2), 170- 214 (2016)
24. *Topological Galois Theory*,
    Advances in Mathematics 291 , 646-695 (2016)
25. *Priestley-type dualities for partially ordered structures,*
    Annals of Pure and Applied Logic 167 (9), 820-849 (2016)
26. *The Morita-equivalence between MV-algebras and abelian l-groups with strong units* (with A. C. Russo),
    Journal of Algebra 422, 752-787 (2015)
27. *Motivic toposes,*
    arxiv:math.AG/1507.06271 (2015), 41 pages
28. *Fraïssé's construction from a topos-theoretic perspective,*
    Logica Universalis 8 (2), 261-281 (2014)
29. *A general method for building reflections*,
    Applied Categorical Structures 22 (1), 99-118 (2014)
30. *Topologies for intermediate logics*,
    Mathematical Logic Quarterly 60 (4-5), 335-347 (2014)
31. *Site characterizations for geometric invariants of toposes,*
    Theory and Applications of Categories 26 (225), 710-728 (2012)
32. *Syntactic characterizations of properties of classifying toposes,*
    Theory and Applications of Categories 26 (6), 176-193 (2012)
33. *Universal models and definability,*
    Math. Proc. Cam. Phil. Soc. 152 (2), 279-302 (2012)
34. *Gelfand spectra and Wallman compactifications*,
    arXiv:math.CT/1204.3244 (2012), 50 pages

35.   *Atomic toposes and countable categoricity,*
       Applied Categorical Structures 20 (4), 379-391 (2012)
36.   *Yoneda representations of flat functors and classifying toposes*,
       Theory and Applications of Categories 26 (21), 538-553 (2012).
37.   *A characterization theorem for geometric logic,*
       Ann. Pure Appl. Logic 162 (4), 318-321 (2011)
38.   *De Morgan's law and the theory of fields* (with P. T. Johnstone),
       Advances in Mathematics 222 (6), 2145-2152 (2009)
39.   *De Morgan classifying toposes,*
       Advances in Mathematics 222 (6), 2117-2144 (2009)
40.   *A solution to recursive second-order linear equations*,
       Quaderni del Dipartimento di Matematica dell'Università di Torino (12/2005), 10 pages
41.   *An unconventional solution to an Eulerian problem*,
       Quaderni del Dipartimento di Matematica dell'Università di Torino (12/2005), 14 pages

Invited talks

1. 18 September 2025   *Relative toposes for the working mathematician,* 10th Nairobi Workshop on Algebraic Geometry (15-19 September 2025)
2. 7 July 2025   *Toposes for artificial general intelligence,* Workshop *AI For Engineering*, 7 July 2025, Pari*s*
3. 3 July 2025   *Relative toposes for artificial general intelligence II,* second lecture of a course at CentraleSupélec (Université Paris-Saclay)
4. 1 July 2025   *Relative toposes for artificial general intelligence,* Lagrange Centre, Paris
5. 26 June 2025   *Relative toposes for artificial general intelligence I,* first lecture of a course at CentraleSupélec (Université Paris-Saclay)
6. 19 June 2025   *Les topos, de Grothendieck à nos jours,* talk at the IHPST, Paris
7. 15 June 2025   *Relative toposes and meta-learning,* talk at the International Workshop on Structural AI, Shanghai, 13-15 June 2025
8. 7 May 2025   *La "notion unificatrice" de topos,* talk at the conference "L'espace en mathématiques", Université de Marseille
9. 28 March 2025   *Computing with toposes,* seminar at the Lagrange Centre, Paris
10. 3 February 2025   *Toposes as 'bridges' for mathematics and artificial intelligence*, plenary talk at the 18h International Paris Workshop of the Design Theory (Mines Paris, 3rd-4th February 2025)
11. 20 January 2025   *Unité et multiplicité dans les topos de Grothendieck,* talk at EHESS, Paris
12. 21 September 2024   *Topos-empowered automatic theorem generation*, talk at the LMCRC Mathematical & Information Science Summit, Paris
13. 17 September 2024   *Topos-empowered automatic theorem generation*, CRI Department, Mines Paris-Tech
14. 15 July 2024   *Topos-empowered automatic theorem generation,* talk at the Lagrange Centre
15. 4 June 2024   *Relative toposes and meta-learning,* talk at the Computing and AI Summit, London, 3-4 June 2024
16. 3 May 2024   *Deductive systems and Grothendieck topologies,* talk at the Deducteam Seminar, ENS de Paris-Saclay
17. 19 April 2024   *Relative toposes for the working mathematician,* talk at the Lagrange Centre
18. 5 March 2024   *Relative toposes for the working mathematician,* seminar *"Logique, Mathématiques, Informatique, Raisonnement"* of the ENS de Lyon
19. 24 November 2023   *Syntactic learning via topos theory,* talk at the New AI Workshop, RL China
20. 13 October 2023   *Towards a toposic AI*, talk at the Lagrange Mathematical Information Science Workshop In Paris (9 - 13 October 2023)
21. 12 July 2023   *Toposic Galois-Fraïssé theory and motivic toposes*, seminar at the ICBS Satellite Conference on Algebraic and Arithmetic Geometry (Beijing, 11-14 July 2023)
22. 1 June 2023   *Toposes as 'bridges' for mathematics and artificial intelligence*, talk at the *CSTT 2023 Research Symposium*, London, 30 May - 1st June 2023
23. 17 May 2023   *Unifying mathematics through topos theory,* talk at the Logica Universalis Webinar
24. 12 May 2023   *Théorie des topos relatifs via les champs : une introduction III,* talk at the Lagrange Centre
25. 20 April 2023   *Toposes as 'bridges' for mathematics and artificial intelligence,* talk at the University of Luxembourg
26. 14 April 2023   *Théorie des topos relatifs via les champs : une introduction II,* talk at the Lagrange Centre

27. 7 April 2023   *Théorie des topos relatifs via les champs : une introduction I,* talk at the Lagrange Centre

28. 22 March 2023   *Grothendieck toposes as unifying 'bridges' in Mathematics*, talk at the "F1 World Seminar"

29. 14 March 2023   *Grothendieck toposes as unifying 'bridges' in Mathematics*, talk at the "Higher Structures Seminars", Feza Gursey Research Center for Physics and Mathematics (Instanbul, Turkey)

30. 9 March 2022   *Toposes as 'bridges' for mathematics and artificial intelligence*, talk at the MICS laboratory, CentraleSupélec

31. 7 March 2023   *Toposes as 'bridges' for mathematics and artificial intelligence,* talk at the "Workshop on Semantic Information and Communication", Lagrange Center, Paris, 7-8 March 2023

32. 3 March 2023   *Grothendieck toposes as unifying 'bridges' in Mathematics,* Mathematics Colloquium, University di Warwick (U.K.)

33. 24 November 2022   *De Copernic à Grothendieck: la puissance du point de vue fécond*, seminar at the conference in honour of Jean-Jacques Szczeciniarz, University of Paris 7 (24-25 November 2022)

34. 27 October 2022   *Toposes as 'bridges' for mathematics and artificial intelligence*, seminar at the "Dipartimento di Ingegneria dell'Informazione, Elettronica e Telecomunicazioni", University of Rome "La Sapienza"

35. 1 October 2022   *Lectio* at the "Simposio matematico RIMSE 2022" (1-2 October 2022)

36. 29 September 2022   *Grothendieck toposes as unifying 'bridges' in Mathematics,* seminar at ETH Zurich

37. 9 September 2022   *Relative toposes as a generalization of locales,* seminar at the conference SYCO 9 (Como, 8-9 September 2022)

38. 6 September 2022   *On primality conditions and residue number systems,* talk at the ACAI conference 2022 (Dubai, 6-8 September 2022)

39. 31 August 2022   *Grothendieck toposes as unifying 'bridges' in Mathematics,* Colloquium talk at the Stockholm Mathematics Centre (KTH and University of Stockholm)

40. 25 August 2022   *Relative toposes as a generalization of locales,* talk at the conference in honour of the 60th birthday of Thierry Coquand, University of Gotheborg

41. 30 June 2022   *Comment construire des 'ponts' en mathématiques ?,* talk at the congress « Timeworld 2022 », Paris

42. 27 May 2022   *The "unifying notion" of topos,* talk at the conference "Grothendieck, a Multifarious Giant: Mathematics, Logic and Philosophy" (Chapman University, 24-28 May 2022)

43. 3 March 2022   *Relative toposes as a generalization of locales,* talk at the Lagrange Center, Paris

44. 4 Feburary 2022   *Ontologies, knowledge representations and Grothendieck toposes,* joint talk with Laurent Lafforgue given at the "Semantics Workshop" held at the Lagrange Center, Paris, on 3-4 February 2022

45. 22 November 2021   *Deductive systems and Grothendieck topologies,* Dagstuhl Seminar 'Geometric Logic, Constructivisation, and Automated Theorem Proving' (21-26 November 2021)

46. 1 November 2021   *Relative topos theory via stacks,* Wisconsin Logic Seminar

47. 28 September 2021   *Introduction to relative topos theory,* two-hour seminar for the school "Unifying Themes in Geometry" (Como, 27-30 September 2021)

48. 15 June 2021   *Relative topos theory via stacks,* online seminar at ItaCa Fest 2021

49. 27 May 2021   *Toposes as 'bridges' for mathematics and artificial intelligence,* online seminar at DISMA and SmartData Center, Politecnico di Torino

50. 28 April 2021   *Unification and morphogenesis: a topos-theoretic perspective,* Seminar on Logic and Philosophy of Science, University of Palermo (held in videoconference from IHÉS)

51. 27 April 2021   *Topoi as unifying 'bridges': a mathematical morphogenesis,* *Synergia* Seminar at the University of Urbino (held online)

52. 27 August 2020   *Toposes as unifying spaces: historical aspects and prospects,* online seminar at the *Workshop in honor of Alexander Grothendieck's* legacy at the Universidad Nacional de Colombia (27-28 August 2020)

53. 20 July 2020   *One or multiple? The Aesthetics of the Object in Mathematics,* Summer Seminar of *ScienzaNuova*, Merano

54. 30 January 2020   *Introduction to toposes*, talk given at the *Deep Dive in Topos Theory* workshop held at the Huawei Research Laboratories, Paris, France on 30-31 January 2020

55. 22 July 2019   *Real or imaginary? The lesson of topoi,* *ScienzaNuova* Summer Seminar (Merano, July 2019)

56. 10 April 2019   *Denseness conditions and equivalences of toposes,* *6th Workshop on Formal Topology*, Birmingham, U.K. (8-12 April 2019)

57. 2 April 2019   *Grothendieck's topoi as unifying 'bridges' in mathematics,*
Ghislieri College, University of Pavia

58. 22 September 2018   *Grothendieck toposes as unifying 'bridges' in Mathematics,*
Swiss Society for Logic and Philosophy of Science Annual Meeting 2018,
Lugano, Switzerland (21-22 September 2018)

59. 7 June 2018   *Grothendieck's topoi as unifying 'bridges' in Mathematics,*
Department of Mathematics, University of Trento

60. 29 May 2018   *Grothendieck's topoi as unifying 'bridges' in Mathematics,*
Department of Pure and Applied Sciences of the University of Urbino

61. 26 May 2018   *Grothendieck toposes as unifying 'bridges' between theories: a mathematical morphogenesis,*
Third FilMat Conference "Philosophy of Mathematics: Objects, Structures, and Logics,
Caltanissetta (25-27 May 2018)

62. 12 April 2018   *Grothendieck toposes and their roles in Mathematics,*
4th Huawei-IHÉS Workshop on Mathematical Theories for Information and Communication
Technologies, IHÉS (France)

63. 21 March 2018   *Invariants ou dictionnaires? Un point de vue topos-théorique,*
Sorbonne University (Paris, France)

64. 8 March 2018   *Grothendieck toposes and their roles in Mathematics,*
talk given at the *Huawei Research Laboratories,* Paris (France)

65. 6 March 2018   *La "notion unificatrice" de topos,*
"Lectures Grothendieckiennes, École Normale Supérieure - Paris (France).

66. 5 March 2018   *Grothendieck toposes as unifying 'bridges' in Mathematics,*
Department of Computer Science, École Polytechnique (France)

67. 26 January 2018   *Les topos classifiants comme ponts entre theories: une morphogénèse mathématique,*
conference *Quand la forme devient substance : Puissance des gestes, intuition diagrammatique et*
phénoménologie de l'espace, Paris, France (25-27 January 2018)

68. 6 October 2017   *The proof-theoretic relevance of Grothendieck topologies,*
Department of Mathematics and Computer Science, University of Verona, Italy

69. 6 September 2017   *Morita equivalences for MV-algebras,* workshop *Geometry and Non-classical logics,*
University of Salerno (5-8 September 2017)

70. 30 May 2017   *Toposes and their interdisciplinary role,* inaugural seminar at the Department of Science and
High Technology of the University of Insubria

71. 18 May 2017   *Theories of presheaf type as a basic setting for topos-theoretic model theory,*
Logic Seminar of Oxford University (U.K.)

72. 14 April 2017   *When do fundamental groups exist?,*
Department of Mathematics of Kyushu University (Japan)

73. 11 April 2017   *When do fundamental groups exist?,*
Department of Mathematics of Kyoto University (Japan)

74. 10 April 2017   *Grothendieck toposes as unifying 'bridges' in Mathematics,*
Department of Mathematics of Kyoto University (Japan)

75. 6 April 2017   *When do fundamental groups exist?,*
conference *Noncommutative Geometry: Number Theory - Alain Connes' 70th birthday*
celebration, Fudan University, Shanghai, China (23 March - April7 2017)

76. 4 April 2017   *When do fundamental groups exist?,*
British Mathematical Colloquium 2017, Durham, U.K. (3-6 April 2017)

77. 31 January 2017   *Grothendieck toposes as unifying 'bridges' in Mathematics,*
University of Augsburg (Germany)

78. 14 December 2016   *Les topos de Grothendieck comme 'ponts' unifiants en mathématiques,*
seminar on the occasion of the *soutenance d'habilitation à diriger des recherches,*
University of Paris 7 (France)

79. 17 March 2016   *Topos motiviques,*
Seminar "SAGAj" of the Department of Mathematics of the Université d'Orsay (France)

80. 10 November 2015   *De Fraïssé à Galois, en passant par les topos de Grothendieck,*
Séminaire de Logique Mathematiques of the Université de Lyon 1 (France)

81. 3 September 2015   *Duality and Morita-equivalence: a topos-theoretic perspective,*
"Duality in contemporary mathematics: philosophical aspects" workshop,
Wuppertal, Germany (2-5 September 2015)

82. 29 June 2015   *The theory of topos-theoretic 'bridges', five years later,*
UNILOG 2015, Istanbul, Turkey (20-30 June 2015)

83. 25 June 2015   *The theory of topos-theoretic 'bridges', five years later,*
TACL 2015, Ischia (21-26 June 2015)

84. 8 June 2015   *Introduction à la théorie des ponts topos-théoriques,*
International Logic Workshop LIQ 5, Paris, France (8-9 June 2015)

85. 5 May 2015   *La théorie des 'ponts' topos-théoriques,* workshop "Théorie des catégories, dynamiques anciennes et nouvelles, mathématiques et philosophie", Paris (France)

86. 17 April 2015   *Introduction informelle aux topos,* IHÉS (France)

87. 6 March 2015   *Unité et diversité en mathématiques: un point de vue topos-théorique,*
Séminaire de Philosophie et Mathématiques, École Normale Supérieure - Paris (France)

88. 22 January 2015   *Les topos de Grothendieck comme ponts unifiants en mathématiques,*
Séminaire d'algèbre, topologie et géométrie, Université de Nice (France)

89. 5 December 2014   *The Morita-equivalence between MV-algebras and abelian l-groups with strong units,*
conference *Beyond True and False: Logic, Algebra and Topology,*
University of Florence (3-5 December 2014)

90. 12 June 2014   *Une perspective topos-théorique sur l'équivalence entre les l-groupes abeliens et les MV-algèbres parfaites,* Seminar "Algèbres d'opérateurs", Institut de Mathématiques de Jussieu (University of Paris 6 and 7, France)

91. 27 March 2014   *How do Morita-equivalences or geometric morphisms of classifying toposes arise?,*
Dipartimento di Matematica dell'Università di Milano

92. 21 March 2014   *Topological Galois Theory,*
Department of Mathematics and Physics, University of Insubria

93. 20 March 2014   *Natural questions on classifying toposes of geometric theories,*
Dipartimento di Matematica dell'Università di Milano

94. 9 December 2013   *Construction de Fraïssé et topos*, "Séminaire général de logique",
Institut de Mathématiques de Jussieu (University of Paris 6 and 7, France)

95. 5 December 2013   *L'équivalence de Morita entre les algèbres MV et les l-groupes avec unité forte,*
Séminaire d'Algèbres d'Opérateurs, Institut de Mathématiques de Jussieu
(University of Paris 6 and 7, France)

96. 16 November 2013   *Théories de type préfaisceau,*
Séminaire Itinérant de Catégories, Paris (France)

97. 5 November 2013   *Topological Galois Theory*, Manin's Seminar on Algebra, Geometry and Physics,
Max Planck Institute for Mathematics (Germany)

98. 4 May 2013   *Grothendieck toposes as unifying 'bridges' in Mathematics,*
Workshop on Category-Theoretic Foundations of Mathematics,
University of California at Irvine, U.S.A. (4-5 May 2013)

99. 25 April 2013   *Grothendieck toposes as unifying 'bridges' in Mathematics,*
Department of Philosophy of Princeton University (U.S.A.)

100. 22 April 2013   *Fraïssé's construction from a topos-theoretic perspective,*
Harvard/MIT Logic Seminar (U.S.A.)

101. 17 April 2013   *Topological Galois Theory,*
Number Theory Seminar, Harvard University (U.S.A.)

102. 10 April 2013   *Théories de type préfaisceau,*
Seminar "Logique catégorique", University of Paris 7 (France)

103. 4 April 2013   *Spectres de Gelfand et bases de Wallman,*
Séminaire d'Algèbres d'Opérateurs, Institut de Mathématiques de Jussieu
(University of Paris 6 and 7, France)

104. 26 March 2013   *Topoi as unifying 'bridges' in Mathematics,* Department of Mathematics and Physics,
University of Insubria

105. 6 February 2013   *Caractérisation d'invariants topos-théoriques en termes de sites,*
Seminar "Logique catégorique", University of Paris (7France)

106. 16 January 2013   *Théorie de Galois topologique,*
Seminar "Logique catégorique",University of Paris 7 (France)

107. 19 December 2012   *Topological Galois Theory,*
Department of Mathematics, University of Milan

108. 27 November 2012   *Topological Galois Theory,*
DPMMS Category Theory Seminar, University of Cambridge (U.K.)

109. 5 October 2012   *The unification of Mathematics via Topos Theory,*
Fourth French PhilMath Workshop, Paris, France (4-6 October 2012)

110. 18 June 2012   *A topos-theoretic approach to Stone-type dualities,*
Fourth Workshop on Formal Topology, Ljubljana, Slovenia (15-19 June 2012)

111. 19 April 2012   *Topoi as unifying 'bridges' in Mathematics*, Department of Mathematics, University of Milan

112. 2 April 2012   *Toposes as unifying 'bridges' in Mathematics*, Séminaire d'Analyse Algébrique, University of Paris 6 (France)

113. 23 January 2012   *The idea of 'bridge' and its unifying role in Science,*
President's Evening, Jesus College, Cambridge (U.K.)

114. 15 November 2011	*Toposes as 'bridges' for unifying Mathematics*, Category Theory Seminar, University of Cambridge (U.K.)	
115. 7 December 2011	*Fraïssé's construction from a topos-theoretical perspective*, Model Theory Seminar, University of Leeds (U.K.)	
116. 3 December 2011	*The idea of bridge and its unifying role in Science*, "Categories and Physics 2011", Paris, France (30 November - 3 December 2011)	
117. 28 November 2011	*The unification of Mathematics via Topos Theory*, Pure Mathematics Seminar, University of East Anglia (U.K.)	
118. 31 October 2011	*Toposes as bridges for unifying Mathematics*, "Séminaire de Mathématique de l'IHÉS" (France)	
119. 19 October 2011	*The unification of Mathematics via Topos Theory*, Seminar 'Logique catégorique', University of Paris 7 (France)	
120. 12 October 2011	*Toposes as bridges for unifying Mathematics*, Seminar 'Catégories et Physique', University of Paris 7 (France)	
121. 28 September 2011	*The unification of Mathematics via Topos Theory*, New York Category Theory Seminar, City University of New York (U.S.A.)	
122. 26 September 2011	*Toposes as bridges for unifying Mathematics*, D. W.Weeks Lecture Series, MIT (U.S.A.)	
123. 22 September 2011	*The idea of bridge and its unifying role in Science*, Montreal Inter-University Workshop on the History and Philosophy of Mathematics (Canada)	
124. 20 September 2011	*The unification of Mathematics via Topos Theory*, Category Theory Seminar, McGill University, Montréal (Canada)	
125. 19 September 2011	*A topos-theoretic approach to Stone-type dualities*, Logic Seminar, University of Ottawa (Canada)	
126. 3 August 2011	*A topos-theoretic approach to Stone-type dualities*, "Workshop on Duality Theory", University of Oxford, U.K. (2-3 August 2011)	
127. 1 June 2011	*A topos-theoretic approach to Stone-type dualities,* Laboratoire PPS, University of Paris 7 (France)	
128. 31 May 2011	*The unification of Mathematics via Topos Theory,* Laboratoire PPS, University of Paris 7 (France)	
129. 5 May 2011	*A topos-theoretic approach to Stone-type dualities,* Logic Seminar, University of Manchester (U.K.)	
130. 10 March 2011	*The topos-theoretic construction of Stone-type dualities,* University of Leicester (U.K.)	
131. 18 February 2011	*The unification of Mathematics via Topos Theory*, Aspects of Mathematical Foundations of Physics Seminar, University of Oxford (U.K.)	
132. 4 February 2011	*The unification of Mathematics via Topos Theory*, *lecture on the* occasion of the award of the 2010 AILA Prize, XXIV Incontro di Logica, Bologna (2- 4 February 2011)	
133. 25 January 2011	*A topos-theoretic approach to Stone-type dualities*, DPMMS Category Theory Seminar, University of Cambridge (U.K.)	
134.10 December 2010	*A topos-theoretic approach to Stone-type dualities*, University of Birmingham (U.K.)	
135.26 October 2010	*The unification of Mathematics via Topos Theory*, DPMMS Category Theory Seminar, University of Cambridge (U.K.)	
136. 6 September 2010	*The unification of Mathematics via Topos Theory*, "Workshop on Constructive Topology, University of Palermo.	
137.25 June 2010	*The unification of Mathematics via Topos Theory*, "International Category Theory Conference 2010", Genova (20-26 June 2010).	
138. 16 June 2010	*The unification of Mathematics via Topos Theory*, Florence Category Day (2020)	
139.19 May 2010	*Introduction to Category Theory*, Department of Educational Sciences, University of Florence	
140.13 May 2010	*The unification of Mathematics through topoi*, Seminar on Algebraic Geometry, Department of Mathematics, Turin Polytechnic University	
141. 5 May 2010	*The unifying role of toposes in Mathematics*, Department of Mathematics, University of Leeds (U.K.)	

142. 18 February 2010	*The unifying role of toposes in Mathematics*, Dipartimento di Matematica, Università di Genova
143. 1 February 2010	*The unifying role of toposes in Mathematics*, Department of Mathematics, University of Salerno
144. 15 December 2009	*The unifying role of toposes in Mathematics*, Dipartimento di Informatica, Università di Milano
145. 22 September 2009	*The role of toposes in Mathematics*, Université Catholique de Louvain (Belgium)
146. 8 April 2009	Invited seminar at the informal workshop on topoi theory at the Department of Philosophy of the University of Bristol (U.K.)
147. 19 March 2009	*Fraïssé's construction from a topos-theoretic perspective*, Logic Seminar, University of Manchester (U.K.)
148. 5 February 2009	*Fraïssé's construction from a topos-theoretical perspective*, Oxford Advanced Seminar on Informatic Structures and Logic Seminar, University of Oxford (U.K.)
149. 3 February 2009	*Fraïssé's construction from a topos-theoretic perspective*, DPMMS Category Theory Seminar, University of Cambridge (U.K.)
150. 18 December 2008	*Il ruolo dei topoi in Matematica*, Department of Mathematics, University of Milan
151. 11 November 2008	*Atomic toposes and countable categoricity*, DPMMS Category Theory Seminar, University of Cambridge (U.K.)
152. 10 June 2008	*De Morgan classifying toposes*, DPMMS Category Theory Seminar, University of Cambridge (U.K.)

For **invited research courses**, please see the section "Teaching activities - Research courses".

Links to videos of seminars, lectures or interviews are available at http://www.oliviacaramello.com/Videos/Videos.htm .

Other (contributed) talks

153. 25 September 2017	*Theories of presheaf type as a basic setting for topos-theoretic model theory,* seminar at the XXVI meeting of the Italian Association of Logic and its Applications, Padua, 25-28 September 2017
154. 30 July 2011	*A topos-theoretic approach to Stone-type dualities,* plenary presentation at the conference *"Topology, Algebra and Categories in Logic" 2011 (TACL 2011)*, Marseille (France)
155. 26 November 2010	*A topos-theoretic approach to Stone-type dualities,* Seminar at the 91st *Peripatetic Seminar on Sheaves and Logic,* Amsterdam (The Netherlands), 26-28 November 2010
156. 4 August 2009	*Lattices of theories*, Logic Colloquium 2009, Sofia (Bulgaria)
157. 13 December 2009	*A characterization theorem for geometric logic,* seminar given at the 89th *Peripatetic Seminar on Sheaves and Logic,* Universitè Catholique de Louvain (Belgium)
158. 2 November 2009	*Topos Theory and its applications,* seminar at the workshop *"Probability, Uncertainty and Rationality",* Pontignano
159. 24 April 2009	*The role of toposes in Mathematics,* London Mathematical Society 'Women in Mathematics Day 2009',* London (U.K.)
160. 4 April 2009	*Lattices of theories,* seminar given at the 88th *Peripatetic Seminar on Sheaves and Logic,* Cambridge (U.K.)
161. 26 June 2008	*De Morgan classifying toposes*, International Category Theory Conference 2008, Calais (France)

Teaching activities

Curricular courses

A.y. 2024/2025	*Topos Theroy*, 76-hour course for the Master-level degree in Mathematics at the University of Insubria,

	held together with Léo Bartoli and Raffaele Lamagna (my part consisted in 40 hours of theoretical lectures).
A.y. 2024/2025	*Geometria 1,* 72-hour course for the Bachelor's Degree in Mathematics at the University of Insubria held together with Prof. Riccardo Re (my part consisted in 48 hours of theoretical lectures).
A.y. 2023/2024	*Topics in Category Theory*, 76-hour course for the Master-level degree in Mathematics at the University of Insubria, held together with Joshua Wrigley (my part consisted in 40 hours of theoretical lectures). More information is available on the course page https://archivio.uninsubria.it/ugov/degreecourse/221535
A.y. 2023/2024	*Geometria 1,* 72-hour course for the Bachelor's Degree in Mathematics at the University of Insubria held together with Prof. Riccardo Re (my part consisted in 48 hours of theoretical lectures). More information is available on the course page https://archivio.uninsubria.it/ugov/degreecourse/183748
A.y. 2022/2023	*Topos Theory,* 76-hour course for the Master-level degree in Mathematics at the University of Insubria, held together with Joshua Wrigley (my part consisted in 40 hours of theoretical lectures). More information is available on the course page https://www.uninsubria.it/ugov/degreecourse/183965
A.y. 2022/2023	*Geometria 1*, 72-hour course for the Bachelor's Degree in Mathematics at the University of Insubria held together with Prof. Riccardo Re (my part consisted in 48 hours of theoretical lectures). More information is available on the course page https://www.uninsubria.it/ugov/degreecourse/155372
A. y. 2021/2022	*Categorical Logic,* 64-hour course for the Master-level degree in Mathematics at the University of Insubria. More information is available on the course page https://www.uninsubria.it/ugov/degreecourse/145825#0
A. y. 2021/2022	*Geometry 1*, 68-hour course for the Bachelor's Degree in Mathematics at the University of Insubria. More information is available on the course page https://www.uninsubria.it/ugov/degreecourse/145011
A. y. 2020/2021	*Topos theory,* 64-hour course for the Master-level degree in Mathematics at the University of Insubria. More information is available at the course page https://www.uninsubria.it/ugov/degreecourse/145811#0 The slides used to support the lectures are available at https://www.oliviacaramello.com/Teaching/Teaching.htm
A. y. 2020/2021	*Geometry 1*, 64-hour course for the Bachelor's Degree in Mathematics at the University of Insubria. More information is available on the course page https://www.uninsubria.it/ugov/degreecourse/132912#0
A. y. 2019/2020	*Cohomology of toposes,* course for the Master-level Degree in Mathematics at the University of Insubria held together with Prof. Laurent Lafforgue (my part consisted of 32 hours of theoretical lectures) More information is available on the course page https://www.uninsubria.it/ugov/degreecourse/132493#0 The slides used as a support for the lectures are available at https://www.oliviacaramello.com/Teaching/Teaching.htm
A. y. 2019/2020	*Geometry 1*, course for the Bachelor's Degree in Mathematics at the University of Insubria held together with Dr Davide Bianchi (my part consisted of 36 hours of lectures). More information is available at the course page https://www.uninsubria.it/ugov/degreecourse/119116#0

A. y. 2018/2019	*Topos theory,*
	64-hour course for the Master-level degree in Mathematics at the University of Insubria.
	More information is available at the course page
	https://www.uninsubria.it/ugov/degreecourse/120158
	The slides used as a support for the lectures are available at
	https://www.oliviacaramello.com/Teaching/Teaching.htm
A. y. 2017/2018	*Advanced Algebra A,* 64-hour course for the Master-level degree in Mathematics at the University of Insubria.
	More information is available on the course page
	https://uninsubria.esse3.cineca.it/Guide/PaginaADErogata.do?ad_er_id= 2017*N0*S1*25779*24697&ACCADEMIC_YEAR=2017&show_courses=N
A. y. 2011/2012	*Topos Theory*, 32-hour course for the Master of Advanced Study in Mathematics at the University of Cambridge (U.K.), Lent Term 2012
A. y. 2010/2011	*Topos Theory*, 32-hour course for the Master of Advanced Study in Mathematics at the University of Cambridge (U.K.), Lent Term 2011

Research courses

2025	*Introduction to relative topos theory,* 5-hour course at Wuhan University (China), 24-28 September 2025
2025	*Relative toposes for artificial general intelligence,* 4-hour course at CentraleSupélec, Université Paris-Saclay, June and July 2025
2024	*Relative toposes for the working mathematician,* 3-hour course given at the school of the international conference "Toposes in Mondovì", 3-6 September 2024
2024	*Toposes for the working mathematician,* 8-hour course given at CentraleSupélec, Université Paris-Saclay (March-April 2024)
2023	*Théorie des topos relatifs via les champs : une introduction,* 6-hour course (in three sessions) at the Lagrange Center (Paris, April - May 2023)
2022	*Grothendieck toposes, invariants and 'bridges',* 3-hour course for the Domoschool (Domodossola, 18-22 luglio 2022)
2021	*Introduction to relative topos theory,* two-hour course for the school "Unifying Themes in Geometry" (Como, 27-30 September 2021)
2021	*Introduction to sheaves, stacks and relative toposes,* 4-hour course held for the "*Toposes online*" school (24-30 June 2021)
2020	*The geometry of morphisms and equivalences of toposes,* 6-hour invited research course held by videoconference for the Universidad Nacional de Colombia (25-30 October 2020)
2020	*An invitation to topos-theoretic model theory,* 6-hour invited research course at the Institute For Fundamental Research, Tehran (Iran) held via videoconference from IHÉS (13, 20 and 27 May 2020)
2020	*Grothendieck Toposes,* invited 5-hour course at the Spring School "Topics in Category Theory" (*International Centre for Mathematical Sciences, Edinburgh*, U. K.) held by videoconference from IHÉS (11-13 March 2020)
2018	*Grothendieck toposes as unifying 'bridges' in Mathematics*, 3-hour invited course at the workshop '*Geometry at large*', Spain (10-18 December 2018)
2018	*Grothendieck toposes as 'bridges' between theories*, 4-hour research course given at the "*Toposes in Como*" school (24-29 June 2018)
2018	*Stone-type dualities through topos-theoretic 'bridges',* invited research course at the conference '*Logique catégorique, topos et dualités'*, Université de Nice - Sophia Antipolis, France (8-12 January 2018)
2016	*Motivic toposes,* 8-hour invited research course delivered at the Department of Mathematical Sciences of the University of Nottingham, U. K. (21-24 June 2016)
2015	*Introduction to categorical logic, classifying toposes and the 'bridge' technique,* 5-hour research course given at the conference "*Topos à l'IHÉS*" (23-27 November 2015)

2013	*Grothendieck toposes as unifying 'bridges' in Mathematics*, 18-hour invited research course at the Institut de Mathématiques de Jussieu, University of Paris 6 and 7, France (14-31 January 2013)
2010	*The unification of Mathematics via Topos Theory*, 8-hour invited research course at the Department of Mathematics, University of Padua (1-2 July 2010)
2010	*Introduction to Topos Theory and its unifying role in Mathematics*, 12.5-hour research course held at the Scuola Normale Superiore di Pisa (22-26 February 2010)

Mentoring activities

2023	Supervisor for topos theory studies of Jingwen Zhu (Tsinghua University, China)
2022	Supervisor for the Master thesis of Marco Panzeri (University of Insubria)
2021	Supervisor for the Bachelor's degree thesis in Mathematics of Anna Laura Monaci, University of Insubria
2012	Mentor for two Ph.D. students at DPMMS, University of Cambridge (U.K.)
2012	Supervisor of a Master thesis on *Fraenkel-Mostowski models*, DPMMS, University of Cambridge (U.K.).
2011	Supervisor of a Master thesis on *Synthetic Differential Geometry*, DPMMS, University of Cambridge (U.K.).
2007, 2008	Group Leader for the Part III Seminars in Category Theory and Logic, DPMMS, University of Cambridge (U.K.).
2007	Analysis supervisions for first-year students at Trinity College, Cambridge (U.K.)

Supervision of Ph.D. students

- Ph.D. supervisor, from October 2024, of the doctoral research of Bruno Drieux (Grothendieck Institute and École Polytechnique)

- Ph.D. supervisor, from October 2023, of the doctoral research of Gabriel Merlin (Grothendieck Institute and Université Paris-Saclay), together with Prof. Marc Aiguier

- Ph.D. supervisor, from November 2022, of the doctoral research of Marco Panzeri (University of Insubria)

- Ph.D. supervisor, from October 2022, of the research of Elio Pivet (Grothendieck Institute and ETH), together with Prof. Helmut Bölcskei

- Ph.D. supervisor, from October 2022, of the research of Léo Bartoli (Grothendieck Institute and ETH), together with Prof. Helmut Bölcskei

- Ph.D. supervisor, from November 2020 to January 2024 (at the University of Insubria), of Joshua Wrigley, formerly a Bachelor and Master student at the University of Oxford (U.K.). The thesis was defended on 13 February 2024 and was awarded with distinction.

- Ph.D. supervisor, in the years 2018-2021 (at the University of Insubria), of Morgan Rogers, formerly a Bachelor and Master student at the University of Cambridge (U.K.). Morgan Rogers' Ph.D. was funded by an INdAM-COFUND Marie Curie Doctoral Fellowship. The thesis was defended on 15 December 2021 and was awarded with distinction.

- Ph.D. supervisor, in the years 2018-2021 (at the University of Insubria), of Riccardo Zanfa, formerly a Bachelor and Master student at the University of Milan. The thesis was discussed on 15 December 2021, and was awarded with distinction.

- Ph.D. supervisor (with Prof. Antonio Di Nola and Prof. Mai Gehrke) of Anna Carla Russo's Ph.D. thesis carried out at the University of Salerno and at the University of Paris 7 (France). The thesis, entitled "MV-algebras, Grothendieck toposes and applications", was successfully discussed in May 2016.

Supervision of research Master and undergraduate students

- Supervisor of the master thesis of Alexis de Tournemire (Université Paris Sorbonne), 2025

- Supervisor of the internships at the Grothendieck Institute of Stéphane Biwole and Alexis Miller (ENS de Lyon), 2024

- Supervisor of the research internship at the Grothendieck Institute of Bruno Drieux (École Polytechnique), 2024

- Supervisor of the research internship at the Grothendieck Institute of Yorgo Chamoun (Université Paris Cité), 2024

- Supervisor of a mémoire de recherche (on 2-dimensional constructions for classifying toposes) of Owen Sabatini (ENS Paris) and Marine Cases (Université Paris-Saclay), 2023-2024

- Supervisor of the *mémoire de recherche de M2* (February to June 2023) of Gabriel Merlin (University of Paris 6)

- Supervisor of the *mémoire de recherche de M2* (February to September 2023) of Ayman Toufik (University of Paris-Saclay)

- Supervisor of the research mémoire of Eliot Hecky (ENS, Rennes), May-July 2022

- Research supervisor of Master's student Timothée Bonnefoi (ENS Lyon, France), who spent a term at the University of Insubria (October-December 2021) in order to write a *mémoire* under my guidance.

- Supervisor of the *mémoire de recherche de M1* (February to September 2021) of Elio Pivet and Rayane Bamri of the University of Orsay (Paris-Saclay, France). Both received the maximum mark at the defense of the *mémoire*.

- Supervisor of a *mémoire de L3/Magistère 1ère année*, starting in February 2020, by Nolan Albanet and Victor Chachay from the University of Orsay (Paris-Saclay, France). Nolan Albanet was then admitted to the *École Normale Supérieure in* Paris (France), and also offered a scholarship by the *Fondation Hadamard*.

- Supervisor of the Master's thesis of Nicholas Wentzlaff (then a student at the École Polytechnique, France), who was awarded the highest mark at his defense (in 2014) and went on to study at Oxford University (U.K.).

<u>Academic service</u>

- Design of the website of the Centre for Grothendieckian Studies of the Grothendieck Institute www.csg.igrothendieck.org (this is a comprehensive platform containing full referencing of materials relating to Alexander Grothendieck as well as several previously inaccessible items)

- Editor of the journal Advanced Studies: Euro-Tbilisi Mathematical Journal (from 1 August 2023)

- Member of the Scientific Committee of the conference "Synthetic mathematics, logic-affine computation and efficient proof systems", CIRM, 8 - 12 September 2025

- Evaluator for the Banff International Research Station (Canada)

- Referee for the *Fondation Sciences Mathématiques de Paris*

- Expert evaluator for F.R.S.-FNRS proposals (Belgium)

- Reviewer for EPSRC (U.K.)

- Editor of the journal *Logica Universalis* (from 2016)

- Referee for:

  - Advances in Mathematics
  - Journal of Algebra
  - Journal of Algebra and its Applications
  - Theory and Applications of Categories
  - Journal of Pure and Applied Algebra
  - Annals of Pure and Applied Logic
  - Logica Universalis, Journal of Logic and Analysis
  - Journal of Mathematics and Music
  - Studia Logica
  - Journal of Symbolic Logic

- Journal of Mathematical Physics
- Theoretical Computer Science
- Communications in Algebra
- International Journal of Approximate Reasoning
- Indagationes Mathematicae
- Order
- Journal of the London Mathematical Society
- Transactions of the American Mathematical Society
- North-Western European Journal of Mathematics
- Springer
- Oxford University Press
- Cambridge University Press

- Reviewer for *Mathematical Reviews*, *Zentralblatt MATH*

- Member of the Programme Committee of SYCO 12, 2024

- Member of the Jury of the Ph.D. thesis of Fabian Ruch, Chalmers University of Technology (a.a. 2022/2023)

- Member of the Scientific Committee of the conference "Type Theory, Constructive Mathematics and Geometric Logic", CIRM, 1 - 5 May 2023

- Referee and President of the Jury for the Ph.D. thesis of Jacopo Garofali, Università di Roma Tor Vergata (a.y. 2022/2023)

- Member of the Scientific Committee of the "Domoschool - International Alpine School of Mathematics and Physics" (from July 2022)

- Reviewer for a promotion at the Chalmers University of Technology

- Reviewer for a promotion at the Australian National University

- Expert reviewer for the European Science Foundation

- Member of the Board of Directors of the *Logica Universalis Association* (from June 2021)

- Member of the Selection Committee for an RTD-B position in Mathematical Logic at the University of Verona (2021)

- Member of the Doctoral College in Computer Science and Computational Mathematics at the University of Insubria (a.y. 2019/2020)

- Member of the Multidisciplinary Scientific Committee for the journal *Science et Vie*, Reworld Media (2021)

- Member of the HRS4R Researchers Focus Group at the University of Insubria (2017-2019)

- Delegate of the Rector of the Università degli Studi dell'Insubria to the "Attraction of Talent" (19/11/2018-09/07/2020)

- Member of the Commission of the Department of Science and High Technology of the University of Insubria for the Revision of the Regulation of Research Grants (a. y. 2019/2020)

- Member of the Selection Committee for the AILA 3+2 Award (a. y. 2019/2020)

- Reviewer of a research project for the University of Padua (a. y. 2019/2020)

- Member of the Jury for Axel Osmond's doctoral thesis, University of Paris 7, France (a. y. 2021/2022)

- Member of the Jury for the doctoral thesis of Alain Molinier, University of Paris 7, France (a. y. 2017/2018)

- "Controleratore" for a Master-level degree in Mathematics at the University of Pisa (a. y. 2009/2010)

Academic memberships

- Member of the Board of Directors of the *Logica Universalis Association* (from June 2021)

- Member of the Scientific Committee of "Domoschool - International Alpine School of Mathematics and Physics" (from July 2022)

- Member of AILA (Italian Association of Logic and Applications)

- Member of the British Logic Colloquium (2011-2013)

- Fellow of the Cambridge Philosophical Society (2009-2012)

- Member of the "National Group for Algebraic and Geometric Structures and their Applications" of INdAM

Organisational activity

- Organization of the conference « Les mathématiques comme expérience artistique », IHP, Paris, 11 July 2025

- Organization (with the Grothendieck Institute) of the online event "Homage to Alexander Grothendieck", 16 November 2024

- Organization (with the Grothendieck Institute) of the scientific outreach event (on mathematics and music) "Topoi e motivi, tra matematica e musica", with the participation of M. Chiara Cattani and the baroque orchestra Academia Montis Regalis, Mondovì, 9 September 2024

- Organization (with the Grothendieck Institute) of the round table on mathematics and literature "La ricercar dell'universale tra matematica e letteratura", with L. Lafforgue, A. Connes, C. Bartocci and G. Carofiglio, Mondovì, 6 September 2024

- Chair of the Scientific and Organizing Committee of the international event (school + conference) *Toposes in Mondovì* (Mondovì, Italy, 3-11 September 2024), the fourth edition of the international topos theory conference. The event featured three Fields Medalists as speakers and attracted 121 participants from 5 continents and 30 countries.

- Organization of two seminars, by Sina Hazratpour and Yiming Xu, in the framework of the cooperation between Beijing University and the Grothendieck Institute, 2023-2024

- Organization of the conference "*Visions en mathématiques: de Grothendieck à nos jours*", IHP, Paris, 15 June 2023

- Organization of the inagural event of the Grothendieck Institute, entitled "*All'ascolto della voce delle cose*" (with the participation of Johanna Grothendieck, Laurent Lafforgue, Francesca Ronchin, Nicoletta Sabadini and Gino Zaccaria), Mondovì (Italy), 3 December 2022

- Organiser (from 2017 to date) of scientific visits and/or seminars at the Department of Science and High Technology of the University of Insubria (Como) by the following mathematicians:
  - Yiming Xu (Australian National University)
  - Raffaele Lamagna (University of Paris-Saclay and Istituto Grothendieck)
  - Léo Bartoli (ETH and Istituto Grothendieck)
  - Elio Pivet (ETH and Istituto Grothendieck)
  - Timothée Bonnefoi (ENS Lyon)
  - Laurent Lafforgue (IHÉS)
  - Hisashi Aratake (Kyoto University)
  - He-Tong Shih (University of Paris 7)
  - Ivan Fesenko (University of Nottingham)
  - Axel Osmond (University of Paris 7)
  - Jens Hemelaer (University of Antwerp)

- Member of the Scientific and Organizing Committee of the school *Unifying themes in Geometry* (27-30 September 2021). The event featured three Fields Medalists and one Abel Prize winner as speakers and attracted 526 participants; more information is available on the event website https://utge.lakecomoschool.org/

- Chair of the Scientific and Organizing Committee of the international event (school + conference) *Toposes online* (24-30 June 2021), the third edition of the international topos theory conference. The event featured two Fields Medalists as speakers and attracted 562 participants; for more information, visit the event website www.aroundtoposes.com/toposesonline

- Member of the Scientific Committee of the JAMI workshop *Riemann-Roch in characteristic one and related topics*, Johns Hopkins University, U.S.A. (October 2019)

- Organisation, as part of the social programme of the "Toposes in Como" conference, of the public lecture by Alain Connes entitled "The Music of Forms" at the Pinacoteca Civica in Como (26 June 2018)

- Chair of the Scientific Committee and of the Organising Committee of the international event (school + conference) *Toposes in Como* (24-29 June 2018), second edition of the conference *Topos à l'IHÉS*. This event saw the participation

as speakers of two Fields Medalists and attracted more than a hundred participants from seventy institutions and four continents; for more information, visit the event website http://tcsc.lakecomoschool.org/

- Organiser (with Alain Connes, Pierre Cartier, Anatole Khelif and Stéphane Dugowson) of the international conference *Topos à l'IHÉS* (IHÉS, 23 – 27 November 2015); the conference was mainly funded by my "L'Oréal-UNESCO Pour les Femmes et la Science" fellowship and attracted more than a hundred participants

- Organizer of the seminar series entitled "Some aspects of Topos Theory" held by Peter Johnstone (University of Cambridge, U.K.) at the Scuola Normale Superiore and the University of Pisa in April and May 2010.

- Organiser (with Prof. Giuseppe Tomassini and Prof. Angelo Vistoli) of the visit of William Lawvere to the Scuola Normale Superiore in Pisa (18-19 June 2010)

Languages

- English (excellent)
- French (excellent)
- Italian (mother tongue)

Scientific dissemination

General:

- Coordination of the activities of the Grothendieck Institute (from its founding in March 2022 to present) as its President; in particular, scientific outreach activities in the fields of mathematics, logic, philosophy and the history of science (see, for example, the projects of the Institute's Centre for Grothendieckian Studies - www.csg.igrothendieck.org)

Organization of events for the general public:

- Organization of (and participation in) two scientific dissemination events for the general public, one on toposes and motives through mathematics and music (with the baroque orchestra *Academia Montis Regalis*) and another on mathematics and literature (with two Fields medalists and writer Gianrico Carofiglio), on the occasion of the fourth edition of the international topos theory conference (Mondovì, September 2024)

- Organisation of and participation as a speaker at the Grothendieck Institute conference entitled "*Visions en mathématiques: de Grothendieck à nos jours*", Institut Henri Poincaré, Paris, 15 June 2023

- Organisation of and participation as a speaker in the inaugural event of the Grothendieck Institute, entitled "*All'ascolto della voce delle cose*", Mondovì, Italy, 3 December 2022

Online resources:

- Design of the website of the Centre for Grothendieckian Studies of the Grothendieck Institute www.csg.igrothendieck.org (this is a comprehensive platform containing full referencing of materials relating to Alexander Grothendieck as well as many previously inaccessible items)

- Creation of the website of the Grothendieck Institute www.igrothendieck.org, 2022

- Creation of the blog and forum on toposes www.aroundtoposes.com, 2019

- Realization (since 2008) of my personal website www.oliviacaramello.com, offering many scientific explanation and learning resources on the unifying theory of toposes as 'bridges'

Public talks:

- "*Topoi e 'ponti' per la matematica e l'intelligenza artificiale*", talk at the Como municipal library, 6 December 2024
- "*Topos et 'ponts' pour les mathématiques et l'intelligence artificielle*", talk at the Mairie de Clichy, 21 October 2024
- "The idea of 'bridge' and its unifying role", invited seminar at TEDxLakeComo, 10 November 2018
- "Mathematics as art", invited talk at Confindustria Como, 15 January 2020

Interviews:

- Interview for the podcast "*Recherche en cours*" of Radio Aligre FM, Paris (see https://aligrefm.org/emissions/recherche-en-cours-30 for more information), 14 March 2025

- Interview by Eleonora Chioda for the series "*Beautiful minds*" published by La Repubblica, 28 February 2025

- Featured in an article about Alexander Grothendieck by Phil Hoad published in in the Guardian, August 2024

- Participation as speaker in a podcast of Radio France (France Culture) on women in mathematics, 8 November 2023

- Video interview with Jinyi Wang (Tsinghua University, China), available online, July 2023

- Participation in the Radio France documentary on Grothendieck "La Grande Traversée" by M. Durrieu, (2024)

- "*Toposes and Their Place in Mathematics: an Interview with Olivia Caramello*", 24 pages interview on my work published in the Notices of the International Consortium of Chinese Mathematicians (ICCM) in 2023

- Participation in the radio episode "Grothendieck a Mondovì" entirely devoted to the Grothendieck Institute, Radio3 Scienza (RAI – National Italian Radio), 2 December 2022

- Participation in the scientific broadcast "*Grothendieck: la moisson*", France Culture, Radio France, 17 February 2022

- Interview on my research work by Francesco Genovese for Meet Science, available on YouTube

- One-hour interview (in French) on my research work by Stéphane Dugowson and Anatole Khelif (filmed by L. Honnorat), 2013, available on YouTube

Participation in scientific films:

- Participation in the documentary film "*Topos: une révolution mathématique*" by Céline Loozen (in progress)

- Participation in the documentary film about A. Grothendieck by Hervé Nisic "*L'espace d'un homme*", 2023

- Participation in the film "Le graveur de mathématiques - Patrice Jeener" by Quentin Lazzarotto (Institut Henri Poincaré, Paris, France)

- Participation in the film "Formulaire" by Arnaud Petit and Alain Fleischer

Historical, editorial and archivistic work:

- Extensive archivistic research on A. Grothendieck's life and works, with the discovery of new, previously inaccessible materials, for the preparation of the website of the Centre for Grothendieckian Studies (www.csg.igrothendieck.org)

- "*Récoltes et Semailles: une historie de créativité et de rejet*", article published by Gallimard on the occasion of the release of the two-volume book "Récoltes et Semailles" by A. Grothendieck (January 2022)

- Review of the draft of the book "Récoltes et Semailles" by A. Grothendieck for publication by Gallimard (France) – summer of 2022

Activities with school students:

- Meeting with high school students of the Liceo delle scienze applicate e tecnico tecnologico "E. Fermi", Mantova (Italy), 16 April 2025

- Meeting with school students of the Académie de Créteil (France), 1 March 2024, available online

- "Mathematics and Art", invited seminar at Liceo A. Volta, Como, 20 January 2020

- Participation as invited speaker at the national event MIUR FuturaGenova, 4 April 2019

- Participation as invited speaker at FuturaVarese, 14 September 2018

- Invited speaker (two general seminars for high school students on Mathematics) at the "Pitagora" International Mathematics Prize, Crotone (20-21 October 2006)

Philosophical/interdisciplinary dissemination:

- *Toposes as 'bridges' for mathematics and artificial intelligence*, plenary talk at the 18h International Paris Workshop of the Design Theory SIG of the Design Society (Mines Paris, 3rd-4th February 2025)

- *La "notion unificatrice" de topos*, talk at a Seminar about Grothendieck held at the Fondation Hartung-Bergman, Antibes, 20 January 2024

- Speaker at the event "*Verso l'infinito: matematica, fisica e realtà*", scientific outreach evening organized on the occasion of Domoschool 2022, Domodossola (Italy), 21 July 2022

- "The idea of 'bridge' and its unifying role", talk at the RISM conference "The intertwining of Mathematics and Philosophy: opportunities or temptations?" (Varese, 28-29 November 2019)

- "Moltiplicare i punti di vista attraverso la matematica", invited seminar for the Management of the University of Insubria, 11 May 2018

- "*Ce qui ne varie pas au-delà des différences est essentiel*", article for Science et Vie (December 2021)

- The theory of topos-theoretic 'bridges': a conceptual introduction, article on my theory of toposes as 'bridges' published in Glass Bead Journal, 2016

- Member of the Multidisciplinary Scientific Committee for the journal *Science et Vie*, Reworld Media (2021)

- I have written historical-philosophical articles on my research work (cf. the publication list). The quality of these works are witnessed by my obtention of the National Scientific Qualification to the post of Full Professor in Logic, History and Philosophy of Science, as well as by the numerous invitations obtained throughout the years to philosophy conferences.

Visibility

My research and profile have been featured in Wikipedia, the Stanford Encyclopedia of Philosophy, and the nLab.

My work has been publicly praised by Fields Medalists Alain Connes and Laurent Lafforgue, as well as by A. Joyal, who qualified my theory of toposes as 'bridges' as a "*vast extension of Felix Klein's Erlangen Program*".

The videos of my courses and seminars on YouTube count a great number of visualizations.

References

- Reference letters from Fields Medalists Alain Connes, Maxim Kontsevich and Laurent Lafforgue are available on request.

- The Commission's report on my habilitation thesis defended in 2016 at the University of Paris 7 (France) is available at https://www.oliviacaramello.com/Unification/RapportSoutenanceHDROliviaCaramello.pdf

Extra-curricular interests

- Music: After graduating in Piano, I continued to cultivate my interests in musical analysis and piano performance, giving piano concerts on various occasions, for example a recital at the international conference "Mathematics and its applications" (Turin, July 2006), a recital at Trinity College Chapel (Cambridge, U.K. , May 2008) and a recital at the CIRM in Marseille (May 2014).

- Financial mathematics and investments in the stock market: I collaborated, providing the inspiring principles, to the realisation of the stock market forecast analysis system "Up-Down Forecast" of EOS S.r.l., which allowed the management company that used it to win the Milano Finanza Triple A award for the best stock line in Italy in the asset management category (cf. http://www.oliviacaramello.com/Unification/MetaphorsAnalogies.html#FinancialBridges).

- Philosophy and cognitive science