

**ROBERTO CONTI**  
**Curriculum Vitae et Studiorum**

Roma, 03/07/2024

**Part 1 - General Information**

Full Name: Roberto Conti

Date of Birth:

Place of Birth:

Citizenship:

Permanent Address:

Mobile Phone Number:

E-mail:

Spoken languages: italian, english

**Part II - Education**

- + University Graduation: 1990, Università di Roma La Sapienza, Laurea *cum laude* in Physics (subfield: Mathematical Physics). Laurea Thesis: Sull'algebra generata da correnti locali in teoria algebrica dei campi, Advisor: Prof. Sergio Doplicher.
- + Post-graduate studies: a.y. 1991/92, Borsa INDAM; a.y. 1995/96 Borsa Senior INDAM (under the supervision of Prof. R. Longo)
- + PhD in Mathematics (in the field of Analysis): 1997, Università di Roma Tor Vergata. PhD Dissertation: Inclusioni di algebre di von Neumann e teoria quantistica dei campi.

**Part III - Appointments**

- April-October 1997: Post-doc Researcher at the University of Paris 6 P & M Curie.
- a.y. 1997-98: Visiting Scholar at the University of California at Berkeley (UCB), supported by a grant of the Consiglio Nazionale delle Ricerche (CNR), under the supervision of Prof. M. Rieffel.
- a.y. 1998-1999 Mathematics Dept. of the University of Oslo, (non-tenured) Researcher
- 1999: first classified for a CNR grant competition in Italy
- a.y. 1999-2000, 2000-2001: Math. Dept. of the University of Rome Tor Vergata, Research Fellow (Assegno di Ricerca)
- a.y. 2001-2002, 2002-2003, 2003-2004: Friedrich-Alexander Universität Erlangen-Nürnberg, Assistant.
- 2005 - 2006: Math. Dept. of the Chulalongkorn University (Bangkok), Visiting Professor.
- May 2007 - December 2008, School of Mathematical and Physical Sciences of the University of Newcastle, NSW, Research Associate.
- 2009: Math. Dept. of the University of Tor Vergata, Research Fellow (Assegno di Ricerca)
- 2010-2012 (until the end of February): Science Dept. of the University G. D'Annunzio of Chieti-Pescara, Research Fellow (Assegno di Ricerca).
- March 1, 2012- September 30, 2015: tenured Researcher at the Dept. SBAI of the Faculty of Civil and Industrial Engineering of the Sapienza University of Rome.
- National Scientific Habilitation as Associate Professor in Analysis obtained in the 2012 round.
- October 1, 2015-present: Associate Professor in Mathematical Analysis at the Dept. SBAI of the Faculty of Civil and Industrial Engineering of the Sapienza University of Rome.
- National Scientific Habilitation as Full Professor in Analysis obtained in the 2017 round, sc 01/A3

In addition, I have held various visiting positions at several institutions/research centers, including:

- Fields Institute for Research in Mathematical Sciences, Waterloo, Ontario (Canada), for the program "Operator algebras and applications" (29/03/95-04/05/95);
- Erwin Schrödinger International Institute for Mathematical Physics (ESI), Wien, for the program "Local Quantum Physics" (24/09/97-04/10/97);
- Mathematical Sciences Research Institute (MSRI), Berkeley CA, for the program "Operator algebras" (19/11/00-16/12/00);

- Centre for Advanced Studies of the Norwegian Academy of Science and Letters, Oslo, for the project “Non-commutative phenomena in mathematics and theoretical physics” (29/09/01-14/10/01);
- Institut Mittag-Leffler, Stockholm, for the program “Noncommutative Geometry” (01/09/03-20/10/03);
- Max Planck Institut für Mathematik (MPIM), Bonn (22/09/04-24/09/04);
- Erwin Schrödinger Institute, Wien, for the program “Operator algebras and conformal field theory” (29/08/08-26/09/08);
- Mathematisches Forschungsinstitut Oberwolfach (MFO), for a RiP (Research in Pair) with W. Szymański (9/01/11-22/01/11);
- Mathematisches Forschungsinstitut Oberwolfach (MFO), for a RiP (Research in Pair) with J. H. Hong and W. Szymański (13/01/13-26/01/13).
- Simons Center for Geometry and Physics (SCGP), for the program “Operator Algebras and Quantum Physics” (12/06/19-25/06/19).
- Mathematical Institute of the Polish Academy of Science (IMPAN), nel periodo 10/02/24-18/02/24, nell'ambito del programma “Quantum Symmetries”.

Other research visits:

- Mathematics Department, University of Oslo, 27.11.99 - 4.12.99
- Mathematics Department, University of Oslo, 29.4.00 - 27.5.00
- Mathematics Department, University of Oslo, 26.5.01- 19.6.01
- Mathematics Department, University of Erlangen-Nürnberg, 23.6.01 - 29.6.01
- Department of Mathematics, Faculty of Electrical Engineering, Czech Technical University, Prague, 3.12.03 - 9.12.03; 15.9.04 - 20.9.04.
- Mathematics Department, University of Oslo, 5.4.05 - 27.4.05
- Mathematics Department, University of Oslo, 19.4.06 - 8.5.06
- Mathematics Department, University of Oslo, 30.11.06 - 14.12.06
- Scuola Normale Superiore, Pisa, 11.4.07 - 13.4.07
- Mathematics Department, University of Oslo, 7.1.08 - 21.1.08
- IMADA, University of Southern Denmark, 20.6.09 - 29.6.09
- Mathematics Department, University of Oslo, 14.9.09 - 11.10.09
- Mathematics Department, University of Oslo, 3.12.10 - 18.12.10
- IMADA, University of Southern Denmark, 1.6.11 - 30.6.11
- IMADA, University of Southern Denmark, 27.10.11 - 8.10.11
- Mathematics Department, University of Oslo, 20.11.11 - 6.12.11
- IMADA, University of Southern Denmark, 16.3.12 - 29.3.12
- Department of Science, Ochanomizu University, Tokyo, 21.9.12 - 30.9.12
- IMADA, University of Southern Denmark, 30.11.12 - 8.12.12
- Mathematics Department, University of Oslo, 2.2.13 - 15 .2.13
- Mathematics Department, University of Oslo, 27.4.14 - 10.5.14
- Mathematics Department, University of Oslo, 1.5.15 - 15.5.15
- Mathematics Department, University of Oslo, 5.9.16 - 12.9.16
- Mathematics Department, University of Oslo, 22.4.19 - 28.4.19
- Mathematics Department, University of Oslo, 3.3.20 - 12.3.20
- Mathematics Department, University of Oslo, 19.5.22 - 26.5.22
- Mathematics Department, University of Erlangen-Nuernberg, 27.6.22 - 4.7.22
- Mathematics Department, University of Oslo, 12.6.23 - 19.6.23
- Mathematics Department, University of Oslo, 10.6.24 - 16.6 24

#### **Part IV - Teaching Experience**

a.y. 2001-02, Math Dept. of Friedrich-Alexander Universität Erlangen-Nuernberg, lectures on Operator Algebras

a.y. 2001-02, Math. Dept. of Friedrich-Alexander Universität Erlangen-Nuernberg, exercise class for a course in Projective Geometry

a.y. 2001-02, Math. Dept. of Friedrich-Alexander Universität Erlangen-Nuernberg, exercise class for a course in Classical Mechanics

a.y. 2002-03, Math. Dept. of Friedrich-Alexander Universität Erlangen-Nürnberg, lectures on Algebraic Quantum Field Theory

a.y. 2002-03, Math. Dept. of Friedrich-Alexander Universität Erlangen-Nürnberg, exercise class for a course in Commutative Algebra

a.y. 2002-03, Math. Dept. of Friedrich-Alexander Universität Erlangen-Nürnberg, exercise class for a course in Statistical Mechanics

a.y. 2003-04, Math. Dept. of Friedrich-Alexander Universität Erlangen-Nürnberg, lectures on Non-commutative Geometry

a.y. 2003-04, Math. Dept. of Friedrich-Alexander Universität Erlangen-Nürnberg, exercise class for a course in Quantum Mechanics

a.y. 2004-05, Math. Dept. of the Chulalongkorn University, course in Complex Analysis

a.y. 2004-05, Math. Dept. of the Chulalongkorn Analysis, course in Operator Algebras

a.y. 2004-05, Math. Dept. of the Chulalongkorn University, course in Elementary Topology

a.y. 2005-06, Math. Dept. of the Chulalongkorn University, lectures on Special Topics in C\*-algebra theory

a.y. 2005-06 Chulalongkorn University (School of Engineering), courses Calculus I, II

a.y. 2005-06, Math. Dept. of the Chulalongkorn University, course in Functional Analysis

a.y. 2008/09, Architecture Faculty of the University G. D'Annunzio of Chieti-Pescara, course in Mathematical Analysis

a.y. 2011/12, Faculty of Engineering of the Sapienza University, course in Mathematical Analysis II

a.y. 2012/13, Faculty of Engineering of the Sapienza University, course in Mathematical Analysis I (joint with Prof. F. Pacella)

a.y. 2013/14, Faculty of Engineering of the Sapienza University, course in Mathematical Analysis I

a.y. 2013/14, Math. Dept. of the University of Tor Vergata, PhD course Knots, braids and algebras

a.y. 2014/15, Faculty of Engineering of the Sapienza University, course in Mathematical Analysis I

a.y. 2015/16, Faculty of Engineering of the Sapienza University, course in Mathematical Analysis I (9/12 CFU)

a.y. 2016/17-2019/20, Faculty of Engineering of the Sapienza University, course in Mathematical Analysis I (6/12 CFU), course in Mathematical Analysis I and II (3/9 CFU each, in Latina)

a.y. 2020/21, Faculty of Engineering of the Sapienza University, course in Mathematical Analysis I (9/12 CFU), course in Mathematical Analysis II (3/9 CFU, in Latina)

a.y. 2021/22, Faculty of Engineering of the Sapienza University, course in Mathematical Analysis I (9/12 CFU), course in Mathematical Analysis II (3/9 CFU)

a.y. 2022/23-2023/24, Faculty of Engineering of the Sapienza University, course in Mathematical Methods for Chemical Engineering (6/9 CFU), course in Mathematical Analysis II (6/9 CFU)

#### **Part V - Society memberships, Awards and Honours**

Member of the INDAM National Group for Mathematical Analysis, Probability and Applications (GNAMPA), Section of Functional and Harmonic Analysis.

Member of the International Association of Mathematical Physics (IAMP)

#### **Part VI - Funding Information**

2013: Sapienza Ricerca Scientifica, responsible of the project Analisi Armonica Noncommutativa e Applicazioni a Teorie Quantistiche, 4000 E.

2014: Sapienza Ricerca Scientifica, member of the project Analisi armonica noncommutativa e applicazioni a meccanica quantistica, probabilità e matematica discreta, 3000 E.

2015: Sapienza Ricerca Scientifica, member of the project Analisi armonica non commutativa e algebre di operatori, 3000 E.

2017: Sapienza Ricerca Scientifica, responsible of the project Algebre di operatori e analisi armonica noncommutativa, 3500 E.

2018: Sapienza Ricerca Scientifica, member of the project Analisi e geometria non commutative con applicazioni quantistiche, probabilistiche e alla teoria dei numeri, 12000 E.

2019: Sapienza Ricerca Scientifica, responsible of the project Algebre di operatori, analisi armonica, geometria nonnoncommutativa ed applicazioni alla fisica quantistica, la combinatoria e la teoria dei numeri, 15000 E.

2020: Sapienza Ricerca Scientifica, responsible of the project Algebre di operatori, geometria noncommutativa, gruppi quantistici e applicazioni alla teoria quantistica dei campi, la combinatoria e la teoria dei numeri, 10000 E.

2021: Sapienza Ricerca Scientifica, member of the project Algebre di operatori, geometria noncommutativa, gruppi quantistici e applicazioni alla teoria quantistica dei campi, alla combinatoria e alla teoria delle rappresentazioni, 13200 E.

2023: Sapienza Ricerca Scientifica, responsible of the project Operator algebras and harmonic analysis, with applications to noncommutative geometry, quantum field theory, representation theory and combinatorics, 3600 E.

## **Part VII - Research Activities**

Operator Algebras: study of the theory of C\*-algebras and von Neumann algebras and related mathematical structures

Noncommutative Harmonic Analysis: Analytic and geometric aspects of group theory, noncommutative Fourier series, multipliers

Mathematical Physics: structural aspects of the relativistic theory of quantized fields, superselection theory of local nets

Noncommutative Geometry: spectral triples, categorical aspects

## **Part VIII - Summary of Scientific Achievements**

Given 26 invited lectures at international meetings (see the attachment A1) and, in addition, more than 45 invited talks at different institutions all over the world (see the attachment A2). (For the complete list of official scientific events in which I participated, see the attachment B).

80 published or accepted articles in mathematical research journals and books (including refereed proceedings volumes) all at international level (see the attachment C, which includes also the PhD Dissertation), for more than 2000 pages as a whole. In addition, a couple of preprints are presently under the referee process.

Total number of publications appearing in international databases recognized for the national scientific habilitation: 67 (scopus), 76 (mathscinet)

Hirsh (H) index: 13 (scopus)

Total citations: 478 (scopus), 489 (mathscinet)

Average citations for publication: 7,13 (scopus)

Total impact factor: 55,049 (based on the available data in Scopus/Journal Citation Reports by Clarivate Analytics)

Average Impact factor: 0,965 (average over the 57 products for which the data were available)

Served as referee for the following journals:

*Canadian J. Math., Compos. Math., Intern. J. Math., Invent. Math., J. Aust. Math. Soc., J. Fourier Anal. Appl., J. Funct. Anal., J. Geom. Anal., J. Math. Phys., J. Operator Th., Lett. Math. Phys., Math. Scand., Rev. Math. Phys., SIGMA Symmetry Integrability Geom. Methods Appl., Southeast Asian Bull. Math., Studia Math., Taiwanese J. Math., Trans. A.M.S.*

Member of the scientific board for the PhD program at the SBAI Dept. (cycles XXVIII, XXIX, XXX, XXXI, XXXII, XXXIII, XXXIV, XXXV, XXXVI, XXXVII, XXXVIII, XXXIX, XL).

## **Part IX - Selected Publications**

15 selected publications, see the attachment D.

## A1 - Invited Lectures

- “*Noether subalgebras of local algebras*” ”C\*-Algebras and Their Invariants”, Cork, Ireland, 10–15/7/1995
- “*Amenable groups and covariant representations of extended Cuntz algebras*”, “16<sup>th</sup> International Conference on Operator Theory”, Timisoara, Romania, 2–8/7/1996
- “*Amenable groups and covariant representations of extended Cuntz algebras*”, “Summer School in Operator Algebras”, Odense, Denmark, 13–22/8/1996
- “*On sectors with infinite statistics*”, “Local Quantum Physics”, Erwin Schrödinger Institute, Wien, Austria, 29/9–4/10/1997
- “*Do field algebras have trivial superselection structure?*”, “17<sup>th</sup> International Conference on Operator Theory”, Timisoara, Romania, 23–26/6/1998
- “*Do field algebras have trivial superselection structure?*”, “C\*-Algebras and Non-commutative Geometry”, Copenhagen, Denmark, 4–8/8/1998
- “*About subsystems*”, “Mathematical physics and quantum field theory”, Berkeley CA, U.S.A., 11–13/6/1999
- “*Remarks on infinite tensor product actions*”, “C\*-algebras and tensor categories”, Cortona, Italy, 30/8–3/9/1999
- “*On group automorphisms preserving classes of unitary representations*”, “Operator algebras and mathematical physics”, Constanta, Romania, 2–7/7/2001
- “*Extensions of C\*-automorphisms and quasi-complete groups*”, “Seminar Sophus Lie”, Erlangen, Germany, 21–22/6/2002
- “*A classification result for subsystems*”, “NOG Workshop I”, Institut Mittag-Leffler, Djursholm, Sweden, 8–12/9/2003
- “*Five tunes on Cuntz algebras*”, “AustMS 51”, La Trobe University, Melbourne, Australia, 25–28/9/2007
- “*Localized automorphisms of the Cuntz algebras*”, “First annual meeting of Noncommutative Geometry Network”, DIAS, Dublin, Ireland, 16–20/6/2008
- “*C\*-categories*”, “AGMP-6”, Tjärnö, Sweden, 25–30/10/2010
- “*Automorphisms of the Cuntz algebras*”, “EU-NCG 4th Annual Meeting”, Simion Stoilow Institute of Mathematics of the Romanian Academy of Science, Bucharest, Romania, 25–30/4/2011.
- “*On Aut( $O_n$ )*”, “Danish-Norwegian Operator Algebra Workshop”, Lysebu, Norway, 4–6/12/2011
- “*Endomorphisms of the Cuntz algebras*”, “Mini-Workshop Endomorphisms, semigroups and C\*-algebras of rings”, Oberwolfach, Germany, 6–13/4/2012
- “*Sectors of scaling limit nets and asymptotic morphisms*”, “Workshop on New Trends in Algebraic Quantum Field Theory”, INFN LNF, Italy, 12–14/9/2012
- “*Endomorphisms of the Cuntz algebras*”, “Recent developments in operator algebras and related topics”, RIMS, Kyoto University, Japan, 24–26/9/2012
- “*Fourier series and twisted crossed products*”, “Workshop Noncommutative Geometry and Applications”, Villa Mondragone, Frascati, Italy, 16–21/6/2014
- “*Automorphisms of some Pimsner algebras*”, “11th French-Italian Meeting on Spectral Triples in Non-commutative Geometry”, Villa Toeplitz, Varese, Italy, 2–5/5/2016
- “*Automorphisms and endomorphisms of simple C\* algebras generated by isometries*”, “Operator Algebras and Applications”, SCGP, Stony Brook, NY, 17–21/5/2019
- “*Endomorphisms of C\* algebras generated by isometries*”, “Operator Algebras in Quantum Field Theory and Quantum Probability”, Tor Vergata, Roma, 4–7/12/2019
- “*Automorphisms of the Cuntz algebras and Weyl groups*”, “Noncommutative probability, noncommutative harmonic analysis and related topics, with applications” Bedlewo, Poland, 31/7–6/8/2022
- “*From operator algebras to combinatorics: the case of Cuntz algebras*”, “Séminaire Lotharingien de Combinatoire n.89 and Brenti Fest”, Bertinoro, 26–29/3/2023
- “*Isometries of spectral triples*”, “Noncommutative Geometry and Applications”, Palazzo di Cortona, 24–28/6/2024

## A2 - Invited Talks

- 2/12/1992 : *Sull'algebra di osservabili associati a correnti di Noether*, Seminario di Algebre di Operatori, Math. Dept., Rome 2.
- 10/11/1993 : *Alberi e polinomi*, Seminario di Algebre di Operatori, Math. Dept., Rome 2.

- 15/1/1997 : *Azioni canoniche covarianti su algebre di Cuntz*, Seminario di Algebre di Operatori, Math. Dept., Rome 2.
- 18/11/1997 : *On a class of covariant representations of extended Cuntz algebras*, Functional Analysis Colloquium (sponsored by W. Arveson), Math. Dept., UCB.
- 22/5/1998 : *An introduction to the theory of superselection sectors*, Subfactor seminar (sponsored by V. F. R. Jones), Math. Dept., UCB.
- 29/5/1998 : *An introduction to the theory of superselection sectors, part II*, Subfactor seminar (sponsored by V. F. R. Jones), Math. Dept., UCB.
- 11-12/1998: *An introduction to algebraic quantum field theory I-IV* (series of lectures), C\*-seminar (sponsored by O. Bratteli), Math. Dept., Univ. of Oslo.
- 5/2000 : *Amenability and infinite tensor products*, C\*-seminar (sponsored by O. Bratteli), Math. Dept., Univ. of Oslo.
- 5/2000 : *On subsystems of local nets of von Neumann algebras I-II*, C\*-seminar (sponsored by O. Bratteli), Math. Dept., Univ. of Oslo.
- 2/6/2001 : *On certain automorphisms of Lie groups*, C\*-seminar (sponsored by O. Bratteli), Math. Dept., Univ. of Oslo.
- 28/6/2001 : *An introduction to algebras of operators on Hilbert spaces*, AG Stochastik und Dynamische Systeme, Math. Dept., FAU, Erlangen.
- 9/2001 : *An invitation to axiomatic QFT*, Math. Dept., Chulalongkorn Univ., Bangkok, Thailand.
- 24/09/2004: *On the role of observables in QFT*, Gauge theory seminar (sponsored by M. Marcolli), MPI für Mathematik, Bonn.
- 20/04/2005 : *Observables and spacetime*, C\*-seminar (sponsored by O. Bratteli), Math. Dept., Univ. of Oslo.
- 3/05/2006 : *A horizontal categorification of Gelfand theory*, C\*-seminar (sponsored by O. Bratteli), Math. Dept., Univ. of Oslo.
- 24/05/2006 : *Fourier analysis on discrete groups*, ICAA 06, Bangkok.
- 1/12/2006 : *C\*-independence in operator algebras*, C\*-seminar (sponsored by O. Bratteli), Math. Dept., Univ. of Oslo.
- 7/6/2007 : *Operator algebras and local quantum physics*, Mathematics seminars (coordinated by W. Szymanski), Mathematics, Newcastle NSW.
- 2/10/2007 : *Five tunes on Cuntz algebras*, Paul Baum Feast, Newcastle NSW.
- 3/9/2008 : *Trees and permutation automorphisms of Cuntz algebras*, ESI, Wien
- 23/9/2009 : *Permutation automorphisms of Cuntz algebras*, C\*-seminar, Math. Dept., Univ. of Oslo.
- 6/10/2009 : *Permutation automorphisms of the Cuntz algebras*, Harmonic analysis seminar, Math. Dept., Chalmers University of Technology, Göteborg.
- 15/12/2010 : *Automorphisms of the Cuntz algebras*, Oslo-Trondheim seminar, Math. Dept., Univ. of Oslo.
- 17/6/2011 : *Scaling limit nets and asymptotic morphisms*, IMADA, Odense.
- 29/9/2011 : *On Fourier analysis for reduced group C\*-algebras*, IMADA, Odense.
- 5/10/2011 : *Sectors of scaling limit nets and asymptotic homomorphisms*, Operator algebra seminar, Copenhagen.
- 24/11/2011 : *Sectors of scaling limit nets and asymptotic morphisms*, C\*-seminar, Math. Dept., Univ. of Oslo.
- 16/05/2012 : *Automorphisms of the Cuntz algebras*, Math. Dept., Rome 2.
- 13/2/2013 : *The dark side of the Cuntz algebras*, C\*-seminar, Math. Dept., Univ. of Oslo.
- 6/5/2014 : *Asymptotic morphisms in local quantum physics and study of some models*, C\*-seminar, Math. Dept., Univ. of Oslo.
- 12/3/2015 : *Automorfismi delle algebre di Cuntz*, Dept. of Basic and Applied Sciences for Engineering, Sapienza Univ. of Rome.
- 12/5/2015 : *C\*-algebras and Fourier theory*, C\*-seminar, Math. Dept., Univ. of Oslo.
- 7/9/2016 : *Link invariants as positive definite functions on Thompson groups*, C\*-seminar, Math. Dept., Univ. of Oslo.
- 9/2/2018 : *Le algebre di Cuntz e i loro automorfismi*, Dipartimento SBAI, Sapienza.

- 24/4/2019 : *Endomorphisms of simple  $C^*$ -algebras generated by isometries*,  $C^*$ -seminar, Math. Dept., Univ. of Oslo.
- 11/3/2020 : *Connes isometries of the Cuntz algebras*,  $C^*$ -seminar, Math. Dept., Univ. of Oslo.
- 25/3/2021 : *Old and news about Cuntz algebras*, GAPT Seminar, Cardiff (online)
- 3/10/2022 : *Symmetries of noncommutative spaces: a guided tour through the Cuntz algebra case*, University Quantum Symmetry Lectures (online)
- 20/5/2022 : *On groups and heat properties*,  $C^*$ -seminar, Math. Dept., Univ. of Oslo.
- 30/6/2022 : *Automorphisms of the Cuntz algebras and their Weyl groups. A case study.*, Seminar on Mathematical Physics and Operator Algebras, Math. Dept., FAU Erlangen-Nuernberg.
- 25/1/2023 : *Heat properties for groups*. Seminario di Algebre di Operatori, Math. Dept., University of Rome 2 Tor Vergata.
- 2/2/2023 : *Symmetries of the Cuntz algebras*. Seminario di algebra e geometria, analisi matematica, fisica matematica, Math. Dept., University of Bologna.
- 27/4/2023 : *Heat properties for groups*. PDE a tutto SBAI, Dept. of Basic and Applied Sciences for Engineering, Sapienza University of Rome.
- 31/5/2023 : *Symmetries of noncommutative spaces: a guided tour through the Cuntz algebra case*, North Atlantic Noncommutative Geometry Seminar (online)
- 13/6/2023 : *Symmetries in Operator Algebras: a personal view*,  $C^*$ -seminar, Math. Dept., Univ. of Oslo.
- 16/2/2024 : *Modular algebraic quantum theory*, Quantum symmetries, Thematic Research Programme, IMPAN, Warsaw.
- 8/5/2024 : *Positive definite Fell bundle maps*. Seminario di Algebre di Operatori, Math. Dept., University of Rome 2 Tor Vergata.
- 12/6/2024 : *Isometries of spectral triples*,  $C^*$ -seminar, Math. Dept., Univ. of Oslo.

## B - Participation at conferences, schools, workshops

### Conferences

Operator algebras, quantum groups, duality and their applications in physics, Cortona (Italy), 1989  
Advances in dynamical systems and quantum physics, Capri (Italy), 1993  
Classification of amenable subfactors and related topics (CBMS conference), Eugene, Oregon (U.S.A.), 1993  
Conference on operator algebras (satellite ICM 94), Ginevra (Switzerland), 1994  
Subfactors and their applications, Waterloo, Ontario (Canada), 1995  
Low-dimensional topology, statistical mechanics and quantum field theory, Waterloo, Ontario (Canada), 1995  
 $C^*$ -algebras and their invariants, Cork (Ireland), 1995 (speaker)  
Algebraic quantum field theory and constructive field theory, Göttingen (Germany), 1995  
Operator algebras and quantum field theory, Rome (Italy), 1996  
16<sup>th</sup> International Conference on Operator Theory, Timisoara (Romania), 1996 (speaker)  
Von Neumann algebras and dynamical systems, Nordfjordeid (Norway), 1997 (abstract)  
Recent results in non-commutative geometry, Lisboa (Portugal), 1997  
17<sup>th</sup> International Conference on Operator Theory, Timisoara (Romania), 1998 (speaker)  
 $C^*$ -algebras and non-commutative geometry, Copenhagen (Denmark), 1998 (speaker)  
Groupoidfest, Berkeley CA (U.S.A.), 1998  
Mathematical physics and quantum field theory, Berkeley CA (U.S.A.), 1999 (speaker)  
Operator algebras and non-commutative geometry, Cargèse, Corse (France), 1999  
 $C^*$ -algebras and tensor categories, Cortona (Italy), 1999 (speaker)  
Mathematical physics in mathematics and in physics. Quantum and operator algebraic aspects, Certosa di Pontignano (Italy), 2000  
Subfactors and algebraic aspects of quantum field theory, Berkeley CA (U.S.A.), 2000  
Operator algebras and mathematical physics, Constanta (Romania), 2001 (speaker)  
Abel Bicentennial Conference 2002, Oslo (Norway)  
Seminar Sophus Lie, Erlangen (Germany), 2002 (speaker)  
Recent advances in operator algebras, Rome (Italy), 2006  
The 51st Annual Meeting of the Australian Mathematical Society, Melbourne, Victoria (Australia), 2007 (speaker)  
First Annual Meeting of Noncommutative Geometry Network, Dublin (Ireland), 2008 (speaker)  
Algebraic QFT - The first 50 years, Göttingen (Germany), 2009  
Noncommutative Geometry and Quantum Physics, Vietri (Italy), 2009  
Seminal Interactions between Mathematics and Physics, Rome (Italy), 2010  
EU-NCG 4th Annual Meeting, Bucharest (Romania), 2011 (speaker)  
INDAM Meeting: Noncommutative Geometry, Index Theory and Applications, Cortona (Italy), 2012  
Mathematics and Quantum Physics, Rome (Italy), 2013  
Advances in Mathematics and Theoretical Physics, Rome (Italy), 2017  
Seminal Interactions between Mathematics and Physics II, Rome (Italy), 2021

### Schools

First Caribbean spring school on infinite-dimensional geometry, non-commutative geometry, operator algebras and fundamental interactions, S. Francois, Guadeloupe (West French Indies), 1993  
Summer school on K-theory, Trento (Italy), 1993  
European school of group theory, advances in representation theory of Lie groups and quantum groups, Trento (Italy), 1993  
Summer school on cyclic homology, Trento (Italy), 1994  
Summer school in operator algebras, Odense (Denmark), 1996 (speaker)  
Summer school in non-commutative geometry and applications, Monsaraz (Portugal), 1997  
Free probability, Odense (Denmark), 1999  
CIME school in non-commutative geometry, Martina Franca (Italy), 2000  
CMI-Shanks conference and spring school on Noncommutative Geometry and Applications, Nashville, TN (USA), 2003

The second annual spring institute on Noncommutative Geometry and Operator Algebras, Nashville, TN (USA), 2004

Arbeitsgemeinschaft Conformal Field Theory, Oberwolfach (Germany), 2007

The sixth annual spring institute on Noncommutative Geometry and Operator Algebras, Nashville, TN (USA), 2008

CIMPA School on Spectral Triples and Applications, Bangkok (Thailand), 2011 (local organizer)

GREFI-GENCO Meeting Noncommutative Geometry and Applications, Poiana Brasov (Romania), 2013

### **Workshops**

Operator algebras and Applications, Fields Institute for Research in Mathematical Sciences, Waterloo, Ontario (Canada), 1995

Quantum groups & quantum spaces, Banach International Mathematical Center, Warsaw (Poland), 1995

Local quantum physics, E. Schrödinger International Institute for Mathematical Physics, Wien (Austria), 1997 (speaker)

Operator algebras at the MSRI, Berkeley CA (U.S.A.), 2000

Quantum field theory, noncommutative geometry and quantum probability, Trieste ICTP (Italy), 2001

9th Workshop "Foundations and Constructive Aspects of QFT", Göttingen (Germany), 2001

10th Workshop "Foundations and Constructive Aspects of QFT", Berlin (Germany), 2002

Geometrical and Algebraic Aspects of Quantum Physics, Munich (Germany), 2002

11th Workshop "Foundations and Constructive Aspects of QFT", Göttingen (Germany), 2002

Conformal Field Theory. An Introduction, Rome (Italy), 2003

12th Workshop "Foundations and Constructive Aspects of QFT", Leipzig (Germany), 2003

NOG Workshop I, Institut Mittag-Leffler, Djursholm (Sweden), 2003 (speaker)

13th Workshop "Foundations and Constructive Aspects of QFT", Göttingen (Germany), 2004

Symposium "Perspectives in Quantum Field Theory", Göttingen (Germany), 2004

14th Workshop "Foundations and Constructive Aspects of QFT", Hamburg (Germany), 2004

Workshop on Noncommutative Manifolds, Trieste ICTP (Italy), 2004

Operator algebras, conformal field theory and related topics, ESI, Wien (Austria), 2008

Quantum spacetime and noncommutative geometry, Rome (Italy), 2008

AGMP-6 Workshop: Algebra Geometry Mathematical Physics, Tjärnö (Sweden), 2010 (speaker)

Danish-Norwegian Operator Algebra Workshop, Lysebu (Norway), 2011 (speaker)

MFO Mini-Workshop Endomorphisms, semigroups and  $C^*$ -algebras of rings, Oberwolfach (Germany), 2012 (speaker)

Workshop on New Trends in Algebraic Quantum Field Theory, Frascati (Italy), 2012 (speaker)

Recent developments in operator algebras and related topics, Kyoto (Japan), 2012 (speaker)

Workshop Noncommutative Geometry and Applications, Frascati (Italy), 2014 (speaker)

Workshop on New Trends in Algebraic Quantum Field Theory, Frascati (Italy), 2015

11th French-Italian Meeting on Spectral Triples in Noncommutative Geometry, Varese (Italy), 2016 (speaker)

Operator Algebras and Quantum Field Theory, Frascati (Italy), 2016

Workshop on Noncommutative Geometry and Applications, Trieste ICTP (Italy), 2017

Quantum Information and Operator Algebras, Rome INDAM, 2018

43rd "LQP Foundations and Constructive Aspects of QFT", Galilei Institute, Florence (Italy), 2019

Operator Algebras and Applications, SCGP, Stony Brook, NY (U.S.A.), 2019 (speaker)

Operator Algebras in Quantum Field Theory and Quantum Probability, Tor Vergata, Rome (Italy), 2019 (speaker)

Ypatia 2022, École française de Rome, Rome (Italy), 2022

19th workshop Noncommutative probability, noncommutative harmonic analysis and related topics, with applications, Stefan Banach Conference Center of the Polish Academy of Sciences, Bedlewo (Poland), 2022 (speaker)

Séminaire Lotharingien de Combinatoire n.89 and Brenti Fest, Bertinoro, 2023 (speaker)

Where Mathematics Meets Quantum Physics, Enrico Fermi Research Center (CREF), Rome, 2023 (organiser)

Noncommutativity in the North - MikaelFest, Chalmers University, Gothenburg, 2024  
Noncommutative Geometry and Applications, Cortona, 2024 (speaker)

## C - Full list of publications

- [1] R. Conti, “*On the intrinsic definition of local observables*”, Lett. Math. Phys. **35**, 237-250 (1995). MR 96i:81163.
- [2] R. Conti, C. Pinzari, “*Remarks on the index of endomorphisms of Cuntz algebras*”, J. Funct. Anal. **142**, 369-405 (1996). MR 98e:46065.
- [3] R. Conti, “*Teoria algebrica dei campi e inclusioni di algebre di von Neumann*”, Tesi di Dottorato, Università di Roma Tor Vergata (1996). Copie della tesi sono state depositate presso le Biblioteche Nazionali Centrali di Roma e Firenze in data 29/3/97 e 14/5/97, rispettivamente.
- [4] M. Aita, W. Bergmann, R. Conti, “*Amenable groups and generalized Cuntz algebras*”, J. Funct. Anal. **150**, 48-64 (1997). MR 98k:46110.
- [5] P. Bertozzini, R. Conti, R. Longo, “*Covariant sectors with infinite dimension and positivity of the energy*”, Commun. Math. Phys. **193**, 471-492 (1998). MR 99d:81069.
- [6] R. Conti, “*Amenability and infinite tensor products*”, in Operator Theory, Operator Algebras and Related Topics, Proceedings of the 16th International Conference on Operator Theory, Timisoara 1996, 101-111, The Theta Foundation, Bucharest 1997. MR 1 728 415.
- [7] R. Conti, P. Contucci, C. Falcolini, “*Polynomial invariants for trees. A statistical mechanics approach*”, Discrete Appl. Math. **81**, 225-237 (1998). MR 99b:82035.
- [8] R. Conti, C. D’Antoni, “*Extension of anti-automorphisms and PCT-symmetry*”, Rev. Math. Phys. **12**, 725-738 (2000). MR 2001f:81095.
- [9] R. Conti, C. D’Antoni, “*Extension techniques in  $C^*$ -crossed products by compact group duals and in QFT*”, Electr. J. Differential Equations, Conf.04, 2000, pp. 23-35. MR 2001h:81136.
- [10] R. Conti, F. Fidaleo, “*Braided endomorphisms of Cuntz algebras*”, Math. Scand. **87**, 93-114 (2000).
- [11] S. Carpi, R. Conti, “*Classification of subsystems for local nets with trivial superselection structure*”, Commun. Math. Phys. **217**, 89-106 (2001). MR 2002c:81109.
- [12] R. Conti, S. Doplicher, J. E. Roberts, “*Superselection theory for subsystems*”, Commun. Math. Phys. **218**, 263-281 (2001). MR 2002i:81154.
- [13] S. Carpi, R. Conti, “*Classification of subsystems, local symmetry generators and intrinsic definition of local observables*”, Proceedings of the Conference “Mathematical Physics in Mathematics and in Physics. Quantum and Operator Algebraic Aspects”, Siena, 2000, Fields Inst. Commun. **30**, American Mathematical Society, Providence, RI, 2001, pp. 83-103. MR 2004a:81149.
- [14] R. Conti, S.-Z. Wang, “*Covariant representations for coactions of Hopf  $C^*$ -algebras*”, Bull. Lond. Math. Soc. **35**, 209-217 (2003). MR 2004c:46131.
- [15] W. Bergmann, R. Conti, “*Asymptotic invariance, amenability and generalized Cuntz algebras*”, Ergod. Th. & Dynam. Sys. **23**, 1323-1346 (2003). MR 2004h:46079.
- [16] W. Bergmann, R. Conti, “*Induced product representations of extended Cuntz algebras*”, Ann. Mat. Pura Appl. **182**, 271-286 (2003). MR 2005e:46092.
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- [18] R. Conti, C. D’Antoni, L. Geatti, “*Group automorphisms preserving equivalence classes of unitary representations*”, Forum Math. **16**, 483-503 (2004). MR 2005b:22011.
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- [21] S. Carpi, R. Conti: “*Classification of subsystems for graded-local nets with trivial superselection structure*”, Commun. Math. Phys. **253**, 423-449 (2005). MR 2006d:81154.
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- [23] E. Bédos, R. Conti, “*On twisted Fourier analysis and convergence of Fourier series on discrete groups*”, J. Fourier Anal. Appl. **15**, 336-365 (2009). MR 2010f:22008.

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- [40] R. Conti, J. H. Hong, W. Szymański, “*Analysis of endomorphisms*”, J. Phys.: Conf. Ser. **346**, 012005 (2012).
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- [46] S. Carpi, R. Conti, R. Hillier, M. Weiner, “*Representations of conformal nets, universal  $C^*$ -algebras and K-theory*”, Commun. Math. Phys. **320**, 275-300 (2013).
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- [51] E. Bédos, R. Conti, “*On maximal ideals in certain reduced twisted  $C^*$ -crossed products*”, Math. Proc. Camb. Philos. Soc. **158**, 399-417 (2015).
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- [60] V. Aiello, R. Conti, S. Rossi, N. Stammeier, “*The inner structure of boundary quotients of right LCM semigroups*”, Indiana Univ. Math. J. **69**, 1627-1661 (2020).
- [61] P. Bertozzini, R. Conti, W. Lewkeeratiyutkul, N. Suthichitranont, “*On strict higher  $C^*$ -categories*”, Cah. Topol. Géom. Différ. Catég. **61**, 239-348 (2020).
- [62] P. Bertozzini, R. Conti, N. Pitiwan, “*Discrete non-commutative Gelfand-Naimark duality*”, East-West J. Math. **21**, 103-143 (2019).
- [63] V. Aiello, R. Conti, S. Rossi, “*Permutative representations of the 2-adic ring  $C^*$ -algebra*”, J. Operator Theory **82**, 197-236 (2019).
- [64] F. Brenti, R. Conti, “*Permutations, tensor products, and Cuntz algebra automorphisms*”, Adv. Math. **381**, 107590, 60 pp. (2021).
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- [66] V. Aiello, A. Brothier, R. Conti, “*Jones representations of Thompson’s group  $F$  arising from Temperley-Lieb-Jones algebras*”, Int. Math. Res. Not. Vol. 2021, No. 15, 11209-11245.
- [67] V. Aiello, R. Conti, S. Rossi, “*A Fejér theorem for boundary quotients arising from algebraic dynamical systems*”, Ann. Sc. Norm. Super. Pisa. Cl. Sci., **XXII** 305-313 (2021).
- [68] V. Aiello, R. Conti, S. Rossi, “*Normalizers and permutative endomorphisms of the 2-adic ring  $C^*$ -algebra*”, J. Math. Anal. Appl. **481** (2020) no. 1, 123395.
- [69] E. Bédos, R. Conti, “*The Fourier-Stieltjes algebra of a  $C^*$ -dynamical system II*”, Studia Math. **256**, 217-239 (2021).
- [70] R. Conti, G. Lechner, “*Yang-Baxter endomorphisms*”, J. London Math. Soc. **103**, 633-671 (2021).
- [71] V. Aiello, R. Conti, S. Rossi, “*A hitchhiker’s guide to endomorphisms and automorphisms of Cuntz algebras*”, Rend. Mat. Appl. **42**, 61-162 (2021).
- [72] R. Conti, S. Rossi, “*Groups of isometries of the Cuntz algebras*”, Doc. Math. **26**, 1799-1815 (2021).
- [73] P. Bertozzini, R. Conti, C. Puttirungroj, “*Duality for multimodules*”, Indag. Math. (N.S.) **33**, 768-800 (2022).
- [74] R. Conti, C. Farsi, “*Isometries of Kellendonk-Savinien spectral triples and Connes metric*”, Intern. J. Math. **33**, Article No. 2250084, 26 pp. (2022).

- [75] F. Brenti, R. Conti, G. Nenashev, “*Permutative automorphisms of the Cuntz algebras: quadratic cycles, an involution and a box product*”, Adv. Appl. Math. **143** (2023), Paper No. 102447.
- [76] J. Bassi, R. Conti, “*On isometries of spectral triples associated to AF-algebras and crossed products*”, J. Noncommut. Geom. **18** (2024), 547-566.
- [77] R. Conti, P. Contucci, “*A INatural Avenue*”, preprint [arXiv:2204.08982 \[math.NT\]](https://arxiv.org/abs/2204.08982).
- [78] E. Bédos, R. Conti, “*Heat properties for groups*”, preprint [arXiv:2211.12321 \[math.OA\]](https://arxiv.org/abs/2211.12321).
- [79] J. Bassi, R. Conti, C. Farsi, F. Latrémolière, “*Isometry groups of inductive limits of metric spectral triples and Gromov-Hausdorff convergence*”, J. London Math. Soc. **108**, 1488-1530 (2023).
- [80] R. Conti, G. Morsella, “*Quasi-free isomorphisms of second quantization algebras and modular theory*”, Math. Phys. Anal. Geom. 2024, 27(2), 8.
- [81] F. Brenti, R. Conti, G. Nenashev, “*Cuntz algebra automorphisms: graphs and stability of permutations*”, to appear in Trans. Amer. Math. Soc.
- [82] R. Conti, P. Contucci, V. Iudelevich, “*Bounds on tree distribution in number theory*”, to appear in Ann. Univ. Ferrara.
- [83] E. Bédos, R. Conti, “*Positive definiteness and Fell bundles over discrete groups*”, preprint [arXiv:2407.02216 \[math.OA\]](https://arxiv.org/abs/2407.02216).

**D - List of the publications selected for the evaluation**

- [1] E. Bédos, R. Conti, “*Fourier series and twisted  $C^*$ -crossed products*”, J. Fourier Anal. Appl. **21**, 32-75 (2015).
- [2] E. Bédos, R. Conti, “*On maximal ideals in certain reduced twisted  $C^*$ -crossed products*”, Math. Proc. Cambridge Philos. Soc. **158**, 399-417 (2015).
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- [15] F. Brenti, R. Conti, G. Nenashev, “*Cuntz algebra automorphisms: graphs and stability of permutations*”, to appear in Trans. Amer. Math. Soc.