

Allegato F

Modello di curriculum ai fini della formazione delle liste degli aspiranti commissari.

1. Academic position: Full Professor

- a) **Scientific field:** Mathematical Analysis
- b) **Full Professor since:** 1999
- c) **Department and University:** Department of Mathematical Sciences, The University of Tokyo
- d) **Previous academic positions:**
 - 1989-1991 Research Associate, Department of Mathematics, The University of Tokyo
 - 1991-1992 Lecturer, Department of Mathematics, The University of Tokyo
 - 1992-1999 Associate Professor, Department of Mathematical Sciences, The University of Tokyo

2. Scientific publications

a) Global list of publications

- [1] Centrally ergodic one-parameter automorphism groups on semifinite injective von Neumann algebras,
Math. Scand. 64 (1989), 285-299.
- [2] One-parameter automorphism groups of the hyperfinite type II_1 factor,
J. Operator Theory 25 (1991), 37-59.
- [3] One-parameter automorphism groups of the injective II_1 factor arising from the irrational rotation C^* -algebra,
Amer. J. Math. 112 (1990), 499-524.
- [4] One-parameter automorphism groups of the injective II_1 factor with Connes spectrum zero,
Canad. J. Math. 43 (1991), 108-118.
- [5] (with C. E. Sutherland, M. Takesaki) The structure of the automorphism group of an injective factor and the cocycle conjugacy of discrete abelian

- group actions,
Acta Math. 169 (1992), 105-130.
- [6] Cohomology of actions of discrete groups on factors of type II_1 ,
Pacific J. Math. 149 (1991), 303-317.
- [7] (with M. Takesaki) Compact abelian group actions on injective factors,
J. Funct. Anal. 105 (1992), 112-128.
- [8] Automorphisms commuting with a conditional expectation onto a subfactor with finite index,
J. Operator Theory 28 (1992), 127-145.
- [9] Group actions on injective factors,
 "Current Topics in Operator Algebras", World Scientific Publishing, (1991), 2-12.
- [10] On flatness of Ocneanu's connections on the Dynkin diagrams and classification of subfactors,
J. Funct. Anal. 127 (1995), 63-107.
- [11] (with M. Izumi) Classification of subfactors with the principal graph $D_n^{(1)}$,
J. Funct. Anal. 112 (1993), 257-286.
- [12] Exactly solvable orbifold models and subfactors,
 "Functional Analysis and Related Topics",
 Lect. Notes in Math. 1540, Springer Verlag, (1992), 127-147.
- [13] (with D. E. Evans) Orbifold subfactors from Hecke algebras,
Commun. Math. Phys. 165 (1994), 445-484.
- [14] Centrally trivial automorphisms and an analogue of Connes's $\chi(M)$ for subfactors,
Duke Math. J. 71 (1993), 93-118.
- [15] (with D. E. Evans) From subfactors to 3-dimensional topological quantum field theories and back --- a detailed account of Ocneanu's theory ---,
Internat. J. Math. 6 (1995), 537-558.
- [16] (with D. E. Evans) Subfactors and conformal field theory,
 "Quantum and non-commutative analysis", Kluwer Academic (1993), 341-369.

- [17] (with D. E. Evans) The E_7 commuting squares produce D_{10} as principal graph,
Publ. RIMS Kyoto Univ. 30 (1994), 151-166.
- [18] Classification of paragroup actions on subfactors,
Publ. RIMS Kyoto Univ. 31 (1995), 481-517.
- [19] Paragroups and their actions on subfactors,
"Subfactors", World Scientific (1994), 64-84.
- [20] Paragroups as quantized Galois groups of subfactors,
Sugaku Exp. 9 (1996), 21-35. (Translation of the original Japanese article in *Sugaku* 45 (1993), 346-358.)
- [21] (with D. E. Evans) On Ocneanu's theory of asymptotic inclusions for subfactors, topological quantum field theories and quantum doubles,
Internat. J. Math. 6 (1995), 205-228.
- [22] Orbifold subfactors, central sequences, and the relative Jones invariant κ ,
Internat. Math. Res. Notices (1995), 129-140.
- [23] Classification of approximately inner automorphisms of subfactors,
Math. Ann. 308 (1997), 425-438.
- [24] (with D. E. Evans) "Quantum symmetries on operator algebras" (848 pages),
Oxford University Press, 1998.
- [25] (with D. E. Evans) Orbifold subfactors from Hecke algebras II,
Commun. Math. Phys. 196 (1998), 331-361.
- [26] Quantum doubles and orbifold subfactors,
"Operator Algebras and Quantum Field Theory", S. Doplicher, R. Longo, J. Roberts, L. Zsidó eds, International Press (1997), 271-283.
- [27] Subfactors and paragroup theory,
"Operator Algebras and Operator Theory",
Contemp. Math. 228 (1998), 179-188.
- [28] Quantum Galois correspondence for subfactors,
J. Funct. Anal. 167 (1999), 481-497.

- [29] (with J. Böckenhauer, D. E. Evans) On α -induction, chiral generators and modular invariants for subfactors,
Commun. Math. Phys. 208 (1999), 429-487.
- [30] (with R. Longo, M. Müger) Multi-interval subfactors and modularity of representations in conformal field theory,
Commun. Math. Phys. 219 (2001), 631-669.
- [31] (with J. Böckenhauer, D. E. Evans) Chiral structure of modular invariants for subfactors,
Commun. Math. Phys. 210 (2000), 733-784.
- [32] (with J. Böckenhauer, D. E. Evans) Longo-Rehren subfactors arising from α -induction,
Publ. RIMS Kyoto Univ. 37 (2001), 1-35.
- [33] Braiding and nets of factors on the circle,
"Operator Algebras and Applications", H. Kosaki, ed.
Adv. Stud. Pure Math. 38 (2004), 219-228.
- [34] Braiding and extensions of endomorphisms of subfactors,
"Mathematical Physics in Mathematics and Physics", R. Longo ed.,
The Fields Institute Communications 30, AMS Publications (2001), 261-269.
- [35] Generalized Longo-Rehren subfactors and α -induction,
Commun. Math. Phys. 226 (2002), 269-287.
- [36] (with R. Longo) Classification of local conformal nets: Case $c < 1$,
Ann. of Math. 160 (2004), 493-522.
- [37] Conformal quantum field theory and subfactors,
Acta Math. Sin. 19 (2003), 557-566.
- [38] (with N. Sato, M. Wakui) (2+1)-dimensional topological quantum field theory from subfactors and Dehn surgery formula for 3-manifold invariants,
Adv. Math. 195 (2005), 165-204.
- [39] Classification of operator algebraic conformal field theories,
"Advances in Quantum Dynamics", Contemp. Math. 335 (2003), 183-193.
- [40] (with R. Longo) Classification of two-dimensional local conformal nets with $c < 1$ and 2-cohomology vanishing for tensor categories,
Commun. Math. Phys. 244 (2004), 63-97.

- [41] Subfactor theory and its applications --- operator algebras and quantum field theory ---,
"Selected Papers on Differential Equations Analysis", Amer. Math. Soc. Transl. 215, Amer. Math. Soc. (2005), 97-108.
- [42] Topological quantum field theories and operator algebras,
"Quantum Field Theory and Noncommutative Geometry", Lect. Notes in Phys. 662, Springer Verlag (2005), 241-253.
- [43] Classification of operator algebraic conformal field theories in dimensions one and two,
"XIVth International Congress on Mathematical Physics", 476-485, World Scientific (2005).
- [44] (with R. Longo) Noncommutative spectral invariants and black hole entropy,
Commun. Math. Phys. 257 (2005), 193-225.
- [45] (with R. Longo) Local conformal nets arising from framed vertex operator algebras,
Adv. Math. 206 (2006), 729-751.
- [46] (with R. Longo, U. Pennig, K.-H. Rehren) Classification of non-local chiral CFT with $c < 1$,
Commun. Math. Phys. 271 (2007), 375-385.
- [47] Conformal field theory and operator algebras,
"New Trends in Mathematical Physics", Springer (2009), 345-356.
- [48] (with S. Carpi, R. Longo) Structure and classification of superconformal nets,
Ann. Henri Poincaré 9 (2008), 1069-1121.
- [49] Superconformal field theory and operator algebras,
"Noncommutativity and Singularities", Adv. Stud. Pure Math. 55, (2009), 69-81.
- [50] (with S. Carpi, R. Hillier, R. Longo) Spectral triples and the super-Virasoro algebra,
Commun. Math. Phys. 295 (2010), 71-97.
- [51] From operator algebras to superconformal field theory,
J. Math. Phys. 51 (2010), 015209.

[52] (with S. Carpi, R. Longo) On the Jones index values for conformal subnets,
Lett. Math. Phys. 92 (2010), 99-108.

[53] (with S. Carpi, R. Longo) How to add a boundary condition,
Commun. Math. Phys. 322 (2013), 149-166.

[54] (with N. Suthichitranont) Construction of holomorphic local conformal framed nets,
Internat. Math. Res. Notices 2014 (2014), 2924-2943.

[55] (with Y. Ogata, E. Størmer) Normal states of type III factors,
Pacific J. Math. 267 (2014), 131-139.

b) Scientific publications in the last five years

[1] (with S. Carpi, R. Hillier, R. Longo) Spectral triples and the super-Virasoro algebra,
Commun. Math. Phys. 295 (2010), 71-97.

[2] From operator algebras to superconformal field theory,
J. Math. Phys. 51 (2010), 015209.

[3] (with S. Carpi, R. Longo) On the Jones index values for conformal subnets,
Lett. Math. Phys. 92 (2010), 99-108.

[4] (with S. Carpi, R. Longo) How to add a boundary condition,
Commun. Math. Phys. 322 (2013), 149-166.

[5] (with N. Suthichitranont) Construction of holomorphic local conformal framed nets,
Internat. Math. Res. Notices 2014 (2014), 2924-2943 (first published on line on February 20, 2013)

[6] (with Y. Ogata, E. Størmer) Normal states of type III factors,
Pacific J. Math. 267 (2014), 131-139.

c) Selected scientific publications:

[1] (with C. E. Sutherland, M. Takesaki) The structure of the automorphism group of an injective factor and the cocycle conjugacy of discrete abelian group actions,
Acta Math. 169 (1992), 105-130.

[2] (with D. E. Evans) "Quantum symmetries on operator algebras" (848 pages),
Oxford University Press, 1998.

[3] (with J. Böckenhauer, D. E. Evans) On α -induction, chiral generators and modular invariants for subfactors,
Commun. Math. Phys. 208 (1999), 429-487.

[4] (with R. Longo, M. Müger) Multi-interval subfactors and modularity of representations in conformal field theory,
Commun. Math. Phys. 219 (2001), 631-669.

[5] (with J. Böckenhauer, D. E. Evans) Chiral structure of modular invariants for subfactors,
Commun. Math. Phys. 210 (2000), 733-784.

[6] (with R. Longo) Classification of local conformal nets: Case $c < 1$,
Ann. of Math. 160 (2004), 493-522.

[7] (with R. Longo) Local conformal nets arising from framed vertex operator algebras,
Adv. Math. 206 (2006), 729-751.

3. Other qualifications:

a) Principal investigator for international and national research projects, funded in completion with others on the basis of peer review:

The head of the project "Operator Algebras and their Applications" at RIMS, Kyoto University in 2011-2012.

The head of the grant team for the research project "New Developments in Operator Algebras and Mathematical Physics" in 2011-2015.

b) Chair of the Editorial Board, Editor in Chief or Managing Editor of the following journals:

2005-2012, 2014-to date International Journal of Mathematics

2006-to date Japanese Journal of Mathematics

2006-to date Journal of Mathematical Sciences, The University of Tokyo

c) Member of the Editorial Board of the following journals and book series:

2003- to date Communications in Mathematical Physics

2004- to date International Journal of Mathematics

2004- to date Reviews in Mathematical Physics

2005- to date Journal of Mathematical Physics
2005- to date Japanese Journal of Mathematics
2006- to date Journal of Mathematical Sciences, The University of Tokyo
2014- to date Mathematical Physics Studies, Springer

d) Appointments or fellowships at other universities or at foreign or international, highly qualified research institutions:

1985-1986 Chancellor's Fellow, University of California, Los Angeles
1988-1989 Alfred P. Sloan Doctoral Dissertation Fellow
1991-1992 Miller Research Fellow, Miller Institute for Basic Research in Science, University of California, Berkeley
2011-2012 Visiting Professor, Research Institute for Mathematical Sciences, Kyoto University
2011- to date Senior Scientist (Joint Appointment), Kavli IPMU, The University of Tokyo, (WPI)

e) Membership of Academies, Scientific and Professional Societies

Member of the Mathematical Society of Japan, the American Mathematical Society, and the International Association of Mathematical Physics

f) Prizes and awards

2000 The first Operator Algebra Prize (Japan)
2002 Spring Prize, Mathematical Society of Japan