

**Serge Richard**  
**Graduate school of mathematics**  
**Nagoya University**  
**Chikusa-ku**  
**Nagoya 464-8602**  
**Japan**

**richard@math.nagoya-u.ac.jp**



<http://www.math.nagoya-u.ac.jp/~richard/>

Born : July 20, 1975  
Citizenship : Swiss & Belgian  
Marital status : married, 1 child

### EDUCATION AND EMPLOYMENT

10 / 2016 - ... Designated Professor, Nagoya University (JP)  
On leave of absence from the Université de Lyon (F)

10 / 2013 - 09 / 2016 Designated Associate Professor, Nagoya University (JP)  
On leave of absence from the Université de Lyon (F)

08 / 2012 Reinstatement to my position of Associate Professor (MCF), Camille Jordan Institute, Université de Lyon (F)

09 / 2011 HDR defence, Université de Lyon (F)  
Title : *A few results in scattering theory: Time operator, time delay, Mourre theory and topological Levinson's theorems*  
Jury members : J.-M. Bouclet, S. de Bièvre, V. Georgescu, C. Gérard, J. Kellendonk, C.-A. Pillet

08 / 2010 - 07 / 2012 Visiting scholar, University of Tsukuba (JP)

09 / 2008 - 07 / 2010 Visiting scholar, University of Cambridge (UK)  
Visiting Fellow at Clare Hall, Cambridge  
On leave of absence from the Université de Lyon (F)

11 / 2006 - ... Associate professor (MCF), Camille Jordan Institute, Université de Lyon (F)

10 / 2004 - 10 / 2006 Postdoctoral researcher in mathematical physics and analysis  
Camille Jordan Institute, Université de Lyon (F)

06 / 2004 PhD in Physics (mathematical physics), Université de Genève (CH)  
Title: *Commutator methods in spectral and scattering theory*  
Jury members : A. Alekseev, W. Amrein, G. M. Graf, M. Măntoiu

08 / 2000 - 07 / 2001 Mathematics teacher in 3 classes of secondary school, Geneva (CH)

03 / 1999 MSc in theoretical physics, Université de Lausanne (CH)  
Prize of the Faculty of Sciences

07 / 1998 BA in theoretical physics, Université de Lausanne (CH)

07 / 1994 High School Diploma, Gymnase cantonal de Vevey (CH)  
Awards in physics and history

## Curriculum Vitae

### GRANTS

JSPS Grant-in-Aid for scientific research C no 18K03328, 3 years (2018 - 2020)

Nagoya University research grant for young researcher, 3 years (2017 - 2019)

JSPS Grant-in-Aid for Young Scientists A no 26707005, 3 years (2014 - 2016)

Bonus for excellent research (PES), from Oct. 2012

Research grant from the Japanese Society for the Promotion of Sciences for a stay in Tsukuba (JP), 2 years (2010 - 2012)

Grant for advanced researchers from the Swiss National Science Foundation for a stay in Cambridge (UK), 2 years (2008 - 2010)

CNRS grant for the network Quantum Spaces - Noncommutative Geometry for a stay in Lyon (F), 8 months (2005 - 2006)

Grant for prospective researchers, Swiss National Science Foundation for a stay in Lyon (F), 1 year (2004 - 2005)

### INVITATIONS

- |                         |   |
|-------------------------|---|
| September 17 - 30, 2017 | Facultad de Matemáticas, Pontificia Universidad Católica de Chile, Santiago (Chile) |
| February 20 - 24, 2017  | WPI-AIMR, Tohoku University, Sendai (Japan)   |
| March 7 - 11, 2016      | School of mathematics, UNSW, Sydney (Australia)                                     |
| February 9 - 19, 2016   | Facultad de Matemáticas, Pontificia Universidad Católica de Chile, Santiago (Chile) |
| November 19 - 30, 2014  | Facultad de Matemáticas, Pontificia Universidad Católica de Chile, Santiago (Chile) |
| May 31 - June 15, 2013  | Facultad de Matemáticas, Pontificia Universidad Católica de Chile, Santiago (Chile) |
| December 1 - 15, 2012   | Institut Mittag-Leffler, Stockholm (SU)   |
| June 28 - July 12, 2012 | Departamento de Matemáticas, Universidad de Chile, Santiago (Chile)                 |
| April 30 - May 5, 2012  | Department of theoretical physics, University of Geneva (CH)                        |
| March 5 - 9, 2012       | Department of mathematics, University of Columbia, Missouri (USA)                   |
| Nov. 19 - Dec. 2, 2011  | Facultad de Matemáticas, Pontificia Universidad Católica de Chile, Santiago (Chile) |
| September 19 - 23, 2011 | Mathematics Department, Université Paris Sud, Orsay (F)                             |
| May 30 - June 2, 2011   | Institut de mathématiques, Université de Lyon (F)                                   |
| June 21 - 25, 2010      | Centre Bernouilli, EPFL, Lausanne (CH)  |
| May 23 - 28, 2010       | Institut de mathématiques, Université de Lyon (F)                                   |
| May 1 - 18, 2010        | Facultad de Matemáticas, Pontificia Universidad Católica de Chile, Santiago (Chile) |
| Feb. 26 - Mar. 14, 2010 | School of Mathematics, University of Tsukuba (JP)                                   |
| January 18 - 26, 2008   | Graduate School of Mathematical Sciences, University of Tokyo (JP)                  |
| Nov. 20 - Dec. 1, 2006  | Theoretical Physics Department, Université Paris Sud, Orsay (F)                     |
| October 4 - 14, 2006    | London Math. Society, stays in Birmingham, Leicester, London (UK)                   |
| June 19 - 30, 2006      | Mathematics Department, Université Paris Sud, Orsay (F)                             |

## ACADEMIC ACTIVITIES

- Co-organizer of the workshop *Mathematical approach for topological physics (I)*, Nagoya, April 6, 2018
- Co-organizer of *Himeji conference on partial differential equations*, February 21 - 22, 2018.
- Co-organizer of the workshop *Quantum walks, random walks and scattering theory on periodic systems*, Nagoya, January 21 - 22, 2015
- Member of the consultative board 25/26 of the University of Lyon, since Sept. 2012
- In charge of the weekly seminar of mathematical physics, Camille Jordan Institute, Université de Lyon, Sept. 2012 - July 2013
- Reviewer for MathSciNet (more than 80 reviews) and referee for various mathematical journals
- Co-organizer of the workshop *Scattering theory and higher degree traces*, Lyon, Dec. 3 - 4, 2009
- Co-organizer of the first meeting of the GDR *Quantum Dynamics* in Lyon, September 7 - 9, 2009
- In charge of the weekly seminar of mathematical physics, Camille Jordan Institute, Université de Lyon, Sept. 2007 - June 2008
- Organizer of the workshop *spectral theory and non-commutative geometry*, 2007 - 2008

## TEACHING EXPERIENCE

### Master courses:

- Scattering theory (spring 2018)
- Dixmier traces (spring 2017)
- Hilbert space methods for quantum mechanics (spring 2016)
- K-theory for C\*-algebras, and beyond (spring 2015)
- C\*-algebraic methods in spectral theory (spring 2014)

### Undergraduate courses:

- Groups and their representations (spring 2018), lecture
- Probability (fall 2017), lecture
- Introduction to functional analysis (spring 2017), lecture
- Calculus II (spring 2016, spring 2017, spring 2018), lecture and tutorial
- Calculus I (fall 2015, fall 2016), lecture and tutorial
- Linear algebra II (spring 2014, spring 2015), lecture and tutorial
- Linear algebra I (fall 2013, fall 2014), lecture and tutorial
- Calculus on  $\mathbb{R}^n$  (spring 2013), tutorial
- Analysis II (spring 2013), tutorial
- Analysis I and III (fall 2012), tutorial
- Complex analysis (spring 2008), lecture and tutorial
- Functional analysis (fall 2007), tutorial
- Advanced complex analysis (spring 2007), tutorial
- Calculus with several real variables (spring 2007, fall 2007, spring 2008), tutorial

### Undergraduate courses in physics:

- Electrodynamics (spring 2002, spring 2003), tutorial
- Classical mechanics (fall 2001, fall 2002), tutorial

## Curriculum Vitae

Mathematics for physicists (fall 1999, spring 2000, fall 2000, spring 2001), tutorial

### High school courses:

Regular mathematics teacher in 3 classes of junior high school (fall 2000, spring 2001)

## RESEARCH STUDENTS SUPERVISION

### PhD students

- Hideki Inoue (with DC1), Nagoya University, April 2018 - ...
- Daniel Parra, University of Lyon : *Spectral and scattering theory for crystal lattices*, Sept. 2013 - Jan. 2017

### Examiner for the PhD thesis of

- Marc-Adrien Mandich, University of Bordeaux, *Commutateurs, analyse spectrale et application aux opérateurs de Schrödinger discrets*, novembre 2017
- Galina Levitina, University of New South Wales (Australia), *Witten index, spectral shift function and spectral flow*, October 2017
- Marwa Balti, University of Carthage & University of Nantes : *Laplaciens non auto-adjoints sur un graphe orienté*, May 2017
- Harold Bustos, Universidad de Chile : *Non-abelian duality for  $C^*$ -algebraic covariant structures*, February 2015
- José Garcia Conejeros, Universidad de Chile : *Non-propagation for zero order pseudo-differential operators*, September 2013

### Master students

- Sun Qiwen, (M1), Nagoya University, from October 2017
- Hideki Inoue (M2), Nagoya University : *Index theorems in scattering theory*, April 2017 - March 2018
- Sarra Smara (M2), University of Lyon : *On almost periodic functions*, Jan. - June 2008
- Alexandre Barrat (M2), University of Lyon : *Propagation estimates in scattering theory*, Jan. - June 2008

### Initiation to research

- Benjamin Celaries, ENS Lyon : *Dynamical systems and crossed products*, June - July 2013
- Sènan-Grégory Dossa, ENS Lyon : *Trace and determinant in infinite dimensional Hilbert spaces*, June - July 2013
- Daniel Parra (from Chili), University of Lyon, Oct. 2012 - March 2013
- Harold Bustos (from Chili), University of Lyon, Oct. 2012 - March 2013

## OTHER EXPERIENCE

I suggested, elaborated and coordinated the reordering of the library of the Camille Jordan Institute, from an alphabetical presentation of authors to a classification by subjects. The project has been realised from Sept. 2006 to June 2007.

**CONFERENCES AND SEMINARS**

- Conference **Recent topics on PDE**, Chuo University (JP), November 17 - 18, 2017
- Colloquium, Pontificia Universidad Catolica de Chile, Santiago (Chile), September 22, 2017
- Seminar of solid states physics, Nagoya University, June 26, 2017
- Conference **Spectral theory and mathematical physics**, University of Lorraine / Metz (F),  
May 16 - 18, 2017
- Conference **Advances in non commutative geometry**, University of Kyoto (JP), May 11 - 13, 2017
- Seminar of mathematical physics, WPI AIMR Tohoku University, Sendai (JP), February 23, 2017
- Seminar of mathematical physics, Université de Paris-Sud / Orsay (F), September 21, 2016
- Seminar of mathematics physics, Université de Grenoble (F), September 19, 2016
- Seminar of EDP, analysis and applications, Université de Lorraine / Metz (F), September 16, 2016
- Seminar of analysis, geometry and algebra, Université de Lorraine / Metz (F), September 15, 2016
- Seminar of analysis, Université de Bordeaux (F), September 12, 2016
- Mini-course, School of mathematics, UNSW, Sydney (Australia), March 7 - 11, 2016
- Conference **Spectral and Scattering Theory and Related Topics**, Kyoto (JP), January 20 - 22, 2016
- Seminar of analysis, University of Hyogo, Himeji (JP), November 28, 2015
- Workshop **Quantum walks, random walks and scattering theory on periodic systems**,  
Nagoya (JP), January 21 - 22, 2015
- Seminar of analysis, University of Tsukuba (JP), December 10, 2014
- Conference **Spectral Theory and Mathematical Physics**, Santiago (Chile), November 24 - 28, 2014
- Seminar of operator algebras, University of Tokyo (JP), October 1, 2014
- Seminar of mathematical physics, University of Lyon 1 (F), March 14, 2014
- Conference **The 6th Nagoya Workshop on Differential Equations**, Nagoya (JP),  
March 10 - 12, 2014
- Conference **Himeji Conference on Partial Differential Equations**, Himeji (JP),  
February 20 - 21, 2014
- Seminar of differential equation, Nagoya University (JP), October 28, 2013
- Conference **Variational and Topological Methods in Nonlinear Phenomena**, Alghero (It),  
June 24 - 28, 2013
- Seminar on PDE and spectral theory, Pontificia Universidad Catolica de Chile, Santiago (Chile),  
June 13, 2013
- Seminar of analysis, Université de Nantes (F), May 17, 2013
- Seminar of the C\*-academy, Université d'Orléans (F), January 11, 2013
- Seminar of analysis, Institut Mittag-Leffler, Stockholm (SU), December 6, 2012
- Seminar of probability, statistics and mathematical physics, Université de Lyon (F), October 18, 2012
- Seminar on PDE and spectral theory, Pontificia Universidad Catolica de Chile, Santiago (Chile),  
July 5, 2012
- Seminar of analysis, Universidad de Chile, Santiago de Chile (Chile), July 4, 2012
- Seminar of analysis, Chuo University, Tokyo (JP), June 13, 2012
- Seminar of analysis, University of Tsukuba (JP), June 12, 2012
- Seminar of analysis, University of Okayama (JP), June 5, 2012
- Seminar of mathematical physics, University of Geneva (CH), May 2, 2012
- Seminar PDE and mathematical physics, University of Bordeaux (F), April 17, 2012
- Seminar of analysis, University of Columbia, Missouri (USA), March 8, 2012

## Curriculum Vitae

- Seminar of analysis, Universidad de Chile, Santiago de Chile (Chile), November 30, 2011
- Seminar of analysis, Pontificia Universidad Catolica de Chile, Santiago (Chile), November 24, 2011
- Seminar of analysis Université d'Orsay (F), September 21, 2011
- Seminar of analysis (HDR defence), Université de Lyon 1 (F), September 16, 2011
- Seminar of mathematics, Ritsumeikan University, Kyoto (JP), June 27, 2011
- Conference **Operator theory & boundary value problems**, Orsay (F), May 25 – 27, 2011
- Seminar of mathematics, Kyoto Institute of Technology, Kyoto (JP), February 24, 2011
- Conference **Spectral and Scattering Theory and Related Topics**, Rims Kyoto (JP),  
February. 16 - 18, 2011
- Conference **The 3rd Nagoya Workshop on Differential Equations**, Nagoya (JP),  
February 14 - 15, 2011
- Seminar of mathematics, Institute for the Physics and Mathematics of the Universe (IPMU),  
Kashiwa, Tokyo (JP), December 14, 2010
- Seminar of analysis, University of Tsukuba (JP), December 1, 2010
- Seminar of mathematical physics, University of Sapporo, Hokkaido (JP), November 19, 2010
- Seminar of analysis, University of Hyogo, Himeji (JP), November 10, 2010
- Seminar of analysis, Pontificia Universidad Catolica de Chile, Santiago (Chile), May 6, 2010
- Cardiff Analysis Seminar, Cardiff (UK), March 24, 2010
- Conference **Spectral and scattering theory on graphs**, Tsukuba (JP), March 8 - 9, 2010
- Seminar: spectral problems in mathematical physics, Paris (F), February 8, 2010
- London analysis and probability seminar, Imperial College London (UK), January 28, 2010
- Seminar of analysis, University of Loughborough (UK), October 15, 2009
- Conference **ISAAC Congress**, London (UK), July 13 - 18, 2009
- Seminar of analysis, King's College London (UK), February 16, 2009
- Seminar of mathematical physics, University of Cambridge (UK), January 27, 2009
- Seminar of applied mathematics, University of Cambridge (UK), October 24, 2008
- Conference **Spectral and Scattering Theory for Quantum Magnetic Systems**, Marseille (F),  
July 7 - 11, 2008
- Seminar of analysis, University of Tsukuba (JP), January 23, 2008
- Seminar of analysis, University of Tokyo (JP), January 22, 2008
- Conference **Spectral and Scattering Theory and Related Topics**, Kyoto (JP), January 15 - 17, 2008
- Conference **10th Quantum Mathematics International Conference**, Moeciu (RO),  
September 10 - 15, 2007
- Seminar of mathematical physics, Université de Lille (F), November 14, 2006
- Seminar of mathematical physics, Université de Grenoble (F), November 7, 2006
- Seminar of analysis, King's College London (UK), October 12, 2006
- Seminar of pure mathematics, University of Leicester (UK), October 9, 2006
- Seminar of analysis, University of Birmingham (UK), October 5, 2006
- Conference **Operators theory in Quantum Physics**, Prague (CZ), September 9 - 14, 2006
- Conference **Spectral Theory and its Applications**, Newton Institute, Cambridge (UK),  
July 24 - 28, 2006 (poster)
- Seminar of mathematical physics, Université de Paris Sud, Orsay (F), June 27, 2006
- Conference **Spectral Theory and Mathematical Physics, a Conference in Honor of Barry Simon's  
60th Birthday**, California Institute of Technology (USA), March 27 - 31, 2006 (poster)
- Seminar of mathematical physics, Université de Paris Sud, Orsay (F), February 9, 2006

## Curriculum Vitae

Seminar on partial differential equations, Université de Rennes (F), January 12, 2006  
Seminar of geometry, algebra and operator algebra, Université Blaise Pascal, Clermont-Ferrand (F),  
December 16, 2005  
Seminar of applied analysis, Université de Provence (F), October 18, 2005  
Seminar of mathematical physics, Université de Lyon 1 (F), October 7, 2005  
Conference **Operator Algebras and Mathematical Physics**, Bucharest (RO), August 10 - 17, 2005  
Seminar of analysis, Université de Nantes (F), July 5, 2005  
Seminar of geometry, algebra and operator algebra, Université Blaise Pascal, Clermont-Ferrand (F),  
May 13, 2005  
Seminar of theoretical physics, Institut de physique nucléaire de Lyon (F), April 26, 2005  
Seminar of mathematical physics, Université de Cergy-Pontoise (F), April 20, 2005  
Seminar of mathematical physics, Laboratoire de physique théorique d'Orsay (F), April 14, 2005  
Seminar of analysis and topology, Université de Lyon 1 (F), March 2, 2005  
Seminar of analysis and topology, Université de Lyon 1 (F), February 16, 2005  
Seminar of mathematical physics, ETH Zürich (CH), December 17, 2004  
Seminar of mathematical physics, Université de Genève (CH), September 27, 2004  
Conference **Topologie en physique**, Lyon (F), September 24, 2004  
Seminar of theoretical physics, Université de Genève (CH), June 25, 2004  
Seminar of mathematical physics, Université de Lyon 1 (F), April 2, 2004  
Seminar of mathematical physics, Université de Genève (CH), February 9, 2004  
Seminar on partial differential equations, Université de Paris Sud, Orsay (F), November 25, 2003  
Seminar of analysis, Université de Cergy-Pontoise (F), November 24, 2003  
Conference **Operator Algebras and Mathematical Physics**, Sinaia (RO), June 26 - July 4, 2003  
Seminar of theoretical physics, Ecole Polytechnique Fédérale de Lausanne (CH), May 28, 2003  
Conference **Quantum Hamiltonians with magnetic fields**, Bucharest (RO), September 8 - 14, 2002  
Seminar of mathematical physics, Université de Genève (CH), December 17, 2001  
Seminar of theoretical physics, Université de Lausanne (CH), March 15, 1999