

Iakovos Androulidakis

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Date of Birth: February 6, 1973

Date of PhD: January 17, 2002 (University of Sheffield, U.K.)

April 2024

Positions

Nov. 2016 – today	Associate Professor (tenured), Dept. of Math., NKUA ¹
Jan. 2012 – Oct. 2016	Assistant Professor (tenure track), Dept of Math., NKUA
Aug. 2009 – July 2011	Postdoctoral Researcher (DFG), Inst. of Math., Univ. of Göttingen
Sept. 2008 – June 2009	Postdoctoral Researcher (FCT), Dept. of Math., University of Porto
Oct. 2006 – June 2008	Visiting Assistant Professor (P.D. 407), Dept. of Mathematics, Univ. of Crete
Sept. 2005 – Sept. 2006	Research Assistant to Prof. A. Cattaneo, Inst. of Math., Univ. of Zürich
Sept. 2004 – July 2005	Postdoctoral Researcher (EU-RTN “Quantum Spaces and Non-commutative Geometry”), Dept. of Math., Paris 7 Denis Diderot
May 2002 – Aug. 2004	National service and medical recovery
Sept. 2001 – Feb. 2002	Postdoctoral Researcher (EU-RTN “Differential Geometry Endeavour”), Inst. Superior Tecnico, Lisbon
Sept. 10, 2001	PhD Viva Voce, University of Sheffield, U.K.

Education

Sept. 1997 – Jan. 2002	PhD degree, University of Sheffield, U.K. Thesis title: “Extensions, Classification and Cohomology for Lie algebroids and Lie groupoids”. Supervisor: Kirill C. H. Mackenzie.
Sept. 1995 – July 1997	MSc in Pure Mathematics, Department of Mathematics, NKUA. Dissertation title: “Differential Spaces”. Supervisor: Maria Papatriantafyllou.
Sept. 1990 – July 1995	BSc (Ptychio), Department of Mathematics, NKUA

Grants/Awards/Prizes

March 2025	Presentation by Prof. Claire Debord (Paris Cité) in Séminaire Bourbaki , Institut Hendri Poincaré, Paris, of the Helffer-Nourrigat conjecture. Joint work with O. Mohsen (Paris Saclay) and R. Yuncken (Université de Lorraine), 2022. Preprint https://arxiv.org/abs/2201.12060
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¹NKUA = National and Kapodistrian University of Athens (Greece)

2023

- Visiting Fellowship at Collegium Helveticum (Switzerland) (5000 CHF) <https://collegium.ethz.ch/fellows/fellow-year-2022-23/iakovos-androulidakis/>
- SwissMAP Visiting Fellowship (Switzerland, UZH) (10000 CHF) <https://www.nccr-swissmap.ch/students-researchers/visitors/iakovos-androulidakis>

2015

- “Chercheur Visiteur” at Paris 7 Denis Diderot (3900 euros)
- DFG funding for visits to University of Göttingen (4800 euros)
- “Shapiro Visiting Professorship”, Penn State University (2500 euros)

2013 “Konstantine Karatheodory” prize for best Assistant Professor (NKUA)

2012 Prize of the Academy of Athens for common publication with V. Nestoridis (prize awarded to V. Nestoridis)

2011 Marie Curie Career Integration Grant (50000 euros). FP7-PEOPLE-2011-CIG, Grant No PCI09-GA-2011-290823 <http://scholar.uoa.gr/iandroul/myproject/noncommutative-geometry-singular-foliations-ncgsf>

2011 “Maitre de Conférences Visiteur”, Université Toulouse Paul Sabatier

2008 FCT (Portugal) grant for project “Topological Invariants via Differential Geometry”, PTD/MAT/098770/2008 <https://cmup.fc.up.pt/cmup/pbgothen/titg>

2007 “Ciencias 2007” competition FCT (Portugal). Postdoctoral researcher position for 5 years in Porto.

2005 CNRS postdoctoral position (12 months) at Université Blaise Pascal, Clermont Ferrand. (Chose position in Zürich.)

2000 T.M. Flett award, Faculty of Sciences, University of Sheffield.

1997 Full scholarship (Differential Geometry) by State Scholarships Foundation (Greece) for PhD studies at the University of Sheffield.

Community Service

Administration (Sept. 2019 – Aug. 2020) Director of Algebra-Geometry Section, Department of Mathematics NKUA.

Editorial work (2022) Chief Editor of memorial volume for Kirill C.H. Mackenzie, Journal of Geometric Mechanics. <https://www.aims sciences.org/journal/1941-4889/2021/13/3> and <https://www.aims sciences.org/journal/1941-4889/2022/14/2>

Refereeing Annals of Mathematics, Compositio Mathematica, Journal of Noncommutative Geometry, Documenta Mathematica, Journal of Geometry and Physics, SIGMA, Indagationes Mathematicæ.

Reviewing AMS Math Reviews, Zentralblatt

Evaluation committees for academic positions

- 2022 Department of Mathematics, Aristotle University of Thessaloniki, Associate Professor (tenured) or Assistant Professor (tenured track) “Differential Geometry – Analysis on Manifolds”.

- 2021 Department of Mathematics, University of Patras, Associate Professor (tenured) or Assistant Professor (tenured track) “Geometry”.
- 2021 Department of Mathematics, Aristotle University of Thessaloniki, Assistant Professor “Differential Geometry” (tenure).
- 2021 Department of Mathematics, NKUA, Assistant Professor “Geometry” (tenure).
- 2017 Department of Mathematics, NKUA, Assistant Professor “Geometry” (tenure track position).

PhD evaluation committees

- **Clement Cren (Paris 12, 2023)** “Calculus on filtered manifolds and applications to geometry and harmonic analysis” <https://www.theses.fr/s279397> Committee members: J. M. LESCURE, G. SKANDALIS, I. ANDROULIDAKIS, N. HIGSON, C. DEBORD, C. FERMANNIAN-KAMERER, J.-M. BISMUT, O. MOHSEN
- **Ioannis Zarakas (NKUA, 2013)** “Derivations in algebras of unbounded operators: Hilbert pro- C^* -modules” <https://www.didaktorika.gr/eadd/handle/10442/29255> Committee members: M. FRANGOULOPOULOU, A. KATAVOLOS, C. TRAPANI, I. EMMANOUIL, S. KARANASIOS, M. PAPATRIANTAFYLLOU, I. ANDROULIDAKIS

Organization of conferences

- May 2024, Athens, “16th Panhellenic Geometry Conference” <https://conferences.uoa.gr/event/78/>
- April 2024, CIRM (Luminy), “Group Operator Algebras and Noncommutative Geometry” <https://conferences.cirm-math.fr/2987.html>
- March 2023, Athens, “Noncommutative Geometry and Representation Theory” <https://conferences.uoa.gr/event/56/>
- Anogia, June 2014, Meeting of CNRS GDR “Geometrie Noncommutative”
- Athens, June 2013, 11th Panhellenic Conference of Geometry.
- Athens, Oct. 2012, “Contemporary Algebra and Geometry in Greece”
- Anogia, Aug. 2012, “Geometry and Physics 11: Quantum Geometry”
- Porto, July 2009, “XVIII Oporto Meeting in Geometry, Topology and Physics: Poisson and Symplectic Geometry”
- Gers, Fleurance, June 2007, Meeting of CNRS GDR “Geometrie Noncommutative”: “Singular foliations – Rigidity of type II group actions”

Publications

Published / Accepted for publication

1. **Androulidakis I.** *On a remark by Alan Weinstein.* In: Recent Advances in Diffeologies and Their Applications. Vol. 794. Contemporary Mathematics; 2024. <https://doi.org/10.1090/conm/794>

2. **Androulidakis I., Mohsen O., Yuncken R.** *The convolution algebra of Schwarz kernels on a singular foliation.* J. OPERATOR THEORY [Internet]. 2021;85(2):475-503. <http://www.mathjournals.org/jot/2021-085-002/2021-085-002-009.html>
3. **Androulidakis I., Kordyukov Y.** *Laplacians for generalised smooth distributions as C^* -algebra multipliers.* In: Manuilov, V.M., Mishchenko, A.S., Nazaikinskii, V.E., Schulze, B.W., Zhang, W. (eds) Differential Equations on Manifolds and Mathematical Physics. TRENDS IN MATHEMATICS. Birkhäuser, Cham.; 2021. pp. 11-30. https://link.springer.com/chapter/10.1007/978-3-030-37326-9_2
4. **Androulidakis I., Kordyukov Y.** *Riemannian metrics and Laplacians for smooth generalised distributions.* JOURNAL OF TOPOLOGY AND ANALYSIS [Internet]. 2021;13(2):395-442. <https://www.worldscientific.com/doi/abs/10.1142/S1793525320500168>
5. **Androulidakis I., Skandalis G.** **A Baum-Connes conjecture for singular foliations.** ANNALS OF K -THEORY [Internet]. 2019;4(4):561-620. <https://msp.org/akt/2019/4-4/p02.xhtml>
6. **Androulidakis I., Antonini P.** *Integrable lifts for transitive Lie algebroids.* INTERNATIONAL JOURNAL OF MATHEMATICS [Internet]. 2018;29(9):26 pp. <https://www.worldscientific.com/doi/abs/10.1142/S0129167X18500623>
7. **Androulidakis I., Zambon M.** *Almost regular Poisson manifolds and their holonomy groupoids.* SELECTA MATH. (N.S.) [Internet]. 2017;23(3):2291-2330. <https://link.springer.com/article/10.1007/s00029-017-0319-5>
8. **Androulidakis I., Zambon M.** *Stefan-Sussmann singular foliations, singular subalgebroids and their associated sheaves.* INT. J. GEOM. METHODS PHYS. [Internet]. 2016;13:17 pp. <https://www.worldscientific.com/doi/abs/10.1142/S0219887816410012>
9. **Androulidakis I., Zambon M.** *Holonomy transformations for singular foliations.* ADV. MATH [Internet]. 2014;256:348-397. <https://www.sciencedirect.com/science/article/pii/S0001870814000425?via%3Dihub>
10. **Androulidakis I.** *Laplacians and spectrum for singular foliations.* CHIN. ANN. MATH. SER. B [Internet]. 2014;35(5):679-690. <https://link.springer.com/article/10.1007/s11401-014-0858-4>
11. **Androulidakis I., Zambon M.** *Smoothness of holonomy covers for singular foliations and essential isotropy.* MATH. Z. [Internet]. 2013;275(3-4):921-951. <https://link.springer.com/article/10.1007/s00209-013-1166-5>
12. **Androulidakis I., Skandalis G.** *The analytic index of elliptic pseudodifferential operators on a singular foliation.* J. K -THEORY [Internet]. 2011;8(3):363-385. <https://www.cambridge.org/core/journals/journal-of-k-theory/article/abs/analytic-index-of-elliptic-pseudodifferential-operators-c335714E40F03FD0D093A2D4D5F25E3EB>
13. **Androulidakis I., Nestoridis V.** *Extensions of the disk algebra and Mergelyan's theorem.* C. R. ACAD. SCI. PARIS [Internet]. 2011;349(13-14):745-748. <https://www.sciencedirect.com/science/article/pii/S1631073X11001543?via%3Dihub>
14. **Androulidakis I., Skandalis G.** *Pseudodifferential calculus on a singular foliation.* J. NONCOMMUT. GEOM. [Internet]. 2011;5(1):125-152. <https://ems.press/journals/jncg/articles/2868>
15. **Androulidakis I., Skandalis G.** *The holonomy groupoid of a singular foliation.* J. REINE ANGEW. MATH. [Internet]. 2009;626:1-37. <https://www.degruyter.com/document/doi/10.1515/CRELLE.2009.001/html>

16. **Androulidakis I.** *The holonomy of a singular foliation.* TRAV. MATH. 2007;XVII(17).
17. **Androulidakis I.** *On the connection theory of extensions of transitive Lie algebroids.* DIFF. GEOM. APPL. [Internet]. 2006;24(2):150-171. <https://www.sciencedirect.com/science/article/pii/S0926224505000823?via%3Dihub>
18. **Androulidakis I.** **Geometric quantization and the integrability of Lie algebroids.** BULL. GREEK MATH. SOC. 2006;51:15-21. <https://bulletin.math.uoc.gr/vol/51/51-15-21.pdf>
19. **Androulidakis I.** *Classification of extensions of principal bundles and transitive Lie groupoids with prescribed kernel and cokernel.* J. MATH. PHYS. [Internet]. 2004;(10):3995–4012. <https://pubs.aip.org/aip/jmp/article-abstract/45/10/3995/230872/Classification-of-extensions-of-principal-bundl>
redirectedFrom=fulltext
20. **Androulidakis I.** *Connections on Lie algebroids and the Weil-Kostant theorem.* BULL. GREEK MATH. SOC. 2000;44:51-57. <http://www.hms.gr/apothema/?s=sap&i=715>

Submitted for publication

1. **Androulidakis I., Zambon M.** *Integration of Singular Subalgebroids by diffeological groupoids.* (2023) Preprint <https://arxiv.org/abs/2008.07976>
2. **Androulidakis I., Mohsen O., Yuncken R.** *A pseudodifferential calculus for maximally hypoelliptic operators and the Helffer-Nourigat conjecture.* (2022) Preprint <https://arxiv.org/abs/2201.12060>

Preprint

1. **Androulidakis I.** *Crossed modules and the integrability of Lie brackets.* (2005) Preprint <https://arxiv.org/abs/math/0501103>

Postdoctoral advisory

Antonio Miti 22-CIVIS3i-PF-00303-Miti “Multisymplectic geometry: observables, reduction (Feb 2024 – Jan 2026) and numerical integrators”

- Main academic advisor: Domenico FIORENZA, Sapienza Università di Roma
- Co-advisor: Iakovos ANDROULIDAKIS, National and Kapodistrian University of Athens
- Mentor: Denis DUTYCH, Khalifa University, Abu Dhabi, UAE

Supervision of MSc Theses

Dimitrios Melas (ongoing) “Groupoids and the Atiyah-Singer index theorem”

Veatriki Panagiotopoulou-Alitheinou (Oct. 2022) “The Duistermaat-Kolk proof of Lie’s third theorem”

- Theodora Leventi** (Oct. 2017) “Hurewicz’s theorem”
- Dimitrios Gerontogiannis** (June 2016): “Deformation to the normal cone and the tangent groupoid”
PhD Glasgow 2021, Postdoc Glasgow, Leiden
- Dimitrios Economopoulos** (April 2016): “The Atiyah-Singer index theorem and the heat kernel”
PhD Bonn 2020
- Ioannis Generalis** (Sept. 2016): PhD candidate Samos “Singular foliations in Poisson geometry”
- Christian Aravanis** (Sept. 2014): PhD Sheffield 2018 “Deformation quantization and the Duflo theorem”

Seminars

- Zurich, SS 2022-23 “Introduction to the Witten deformation and Bismut’s hypoelliptic Laplacian”
- Athens, WS 2018-19 “Introduction to K-theory”
- Athens, SS 2017-18 “Characteristic classes”
- Athens, SS 2012-13 “Deformation quantization”
- Athens, WS 2012-13 “Hilbert modules in KK-theory”
- Athens, 2011-12 “The Atiyah-Singer index theorem”
- Porto, WS 2008-09 “Index theory for pseudodifferential operators”
- Crete, WS 2007-08 “The Atiyah-Singer theorem”
- Zürich, WS 2005-06 “Lie groupoids and Lie algebroids in Geometry and Physics”

Postgraduate courses

- Athens, SS 2023-24 “Symplectic Geometry” (including Lie theory and Symplectic Topology (moment maps))
- Athens, WS 2023-24 “Infinite dimensional representations” (Peter-Weyl theorem, spherical harmonics)
- Zurich, SS 2022-23 “Singular foliations” (Holonomy groupoid and applications to Poisson Geometry)
- Athens, WS 2022-23 “Infinite dimensional representations” (Peter-Weyl theorem, Lie theory, spherical harmonics)
- Athens, SS 2021-22 “Pseudodifferential Calculus” (Ellipticity and index theory)
- Athens, SS 2020-21 “Symplectic Geometry” (including Lie theory and Symplectic Topology (moment maps))
- Athens, WS 2020-21 “Differential Geometry” (Manifolds)
- Athens, SS 2019-20 “Riemannian Geometry” (geodesics, Hopf-Rinow theorem, Jacobi fields and Weil’s theorem)
- Athens, WS 2019-20 “Pseudodifferential Calculus” (Ellipticity and index theory)
- Athens, WS 2015-16 “Algebraic Topology” (Homotopy groups, coverings, classification of surfaces)

Athens, WS 2013-14	“Geometric quantization and the orbit method” (with complete calculations in the case of $SU(2)$)
Athens, WS 2013-14	“Differential Geometry” (Manifolds)
Athens, WS 2012-13	“Lie groups and Lie algebras” (Chapter 1 from “Lie groups” by Duistermaat and Kolk)

Undergraduate courses

Athens, mandatory courses	“Geometry I” (Coordinates/Analytic Geometry), “Geometry II” (Differential Geometry of Curves and Surfaces), Linear Algebra for Physicists
Athens, other courses	“Differential Forms” (including de Rham cohomology and Poincaré duality), “Algebraic Topology” (Homotopy groups, coverings, classification of surfaces), “Mathematical Physics” (Chapter 1 from Quantum Mechanics for Mathematicians by L.A. Takhtajan and “Mathematical Methods for Classical Mechanics” by V.I. Arnold)
Crete	Calculus I, Calculus II, Linear Algebra, “Geometry” (Axiomatic foundations of Geometry), “Groups of Geometric Transformations” (Hyperbolic Geometry), “Analysis with many variables” (followed Analysis on manifolds by Spivak)
Zürich	“Differential Geometry”
Sheffield	Demonstration and exercise classes for various classes in Analysis and Algebra

Invited lectures to International Conferences

Thessaloniki , Sept. 2024	TBA, Noncommutative Geometry and Higher Structures
Scalea , June 2024	TBA, Geometry and Machine Learning
Moscow , Oct. 2023	“Hypoellipticity and the Helffer-Nourrigat conjecture”, Semiclassical Analysis and Nonlocal Elliptic Theory, RUDN.
Pitesti , June 2023	“Hypoellipticity and the Helffer-Nourrigat conjecture”, 1st Balkan Mathematics Conference of the EMS
Oberwolfach , May 2023	“A pseudodifferential calculus for maximally hypoelliptic operators and the Helffer-Nourrigat conjecture”, Hypoelliptic operators conference.
Leiden , March 2023	“A pseudodifferential calculus for maximally hypoelliptic operators and the Helffer-Nourrigat conjecture”, Analysis seminar
Zürich , February 2023	“Hypoellipticity and the Helffer-Nourrigat conjecture”, Mathematical Physics Seminar, ETH

- Colombia,** Dec. 2022 “Diffeological groupoids and their operator algebras”, Winter School/Conference on Noncommutative Geometry and Geometric Analysis, Villa de Leyva, Colombia.
- Scalea,** June 2022 “A pseudodifferential calculus for maximally hypoelliptic operators and the Helffer-Nourrigat conjecture”, NCG² and Higher Structures
- Penn State, St Louis,** April 2022 “A pseudodifferential calculus for maximally hypoelliptic operators and the Helffer-Nourrigat conjecture”, Spring 2022 workshop on NCG and Geometric Analysis
- Göttingen,** Feb. 2022 Mini-course on Winter School of the RTG 2491 “Foliations, pseudodifferential operators and groupoids”
- Scalea,** Sept. 2021 “Coordinates for non-integrable Lie algebroids”, conference “A gauge summer with BV”
- Paris 7,** March 2021 “Singular inhomogeneous operators and their parametrices”, Seminar de l’équipe Algebres d’Operateurs
- Texas A& M,** Nov. 2020 “Singular inhomogeneous operators and their parametrices”, NCG seminar
- Nizhny Novgorod,** Dec. 2019 “The Heisenberg calculus on a filtered singular foliation”, Second International conference on Topological methods in Dynamics and Related Subjects, Shilnikov Workshop
- Thessaloniki,** Nov. 2019 “The Heisenberg calculus on a filtered singular foliation”, Geometry seminar
- Shanghai,** Oct. 2019 Series of lectures about Singular Foliations in NCG, East China Normal University
- Orleans,** May 2019 “Diffeological groupoids and their operator algebras”, conference in honor of Jean Renault
- St Louis,** April 2019 “Riemannian metrics and Laplacians for smooth generalised distributions”, NCG festival 2019
- Paris 7,** Feb. 2019 “Riemannian metrics and Laplacians for smooth generalised distributions”, conference in memory of Etienne Blanchard
- Zürich,** Dec. 2018 “A Baum-Connes conjecture for singular foliations and its use”, Mathematical Physics Seminar, ETH
- Moscow,** Nov. 2018 “A Baum-Connes conjecture for singular foliations and its use”, PDEs and Applications, in Memory of B. Sternin. RUDN and Moscow State University

²NCG=Noncommutative Geometry

- Nicosia**, Nov. 2018 “Riemannian metrics and Laplacians for smooth generalised distributions”, Geometry Seminar, University of Cyprus
- Toulouse**, Oct. 2018 “Riemannian metrics and Laplacians for smooth generalised distributions”, meeting of ANR project “SingStar”
- Larnaca**, June 2018 “Riemannian metrics and Laplacians for smooth generalised distributions”, Group Analysis of Differential Equations and Integrable Systems. 2018
- Metz**, Nov. 2017 “Bisubmersions”, 1st conference on Singular Foliations
- St Flour**, Nov. 2017 “Revisiting the K -theory of CP^n from a foliation viewpoint” Meeting of GDR NCG
- Toulouse**, June 2017 “The Baum-Connes conjecture for singular foliations”, meeting of ANR project “SingStar”
- Sheffield**, Aug. 2016 “The Baum-Connes conjecture for singular foliations”, Geometry seminar, University of Sheffield
- Perugia**, July 2016 “Almost regular Poisson manifolds and their holonomy groupoids”
- Patras**, June 2016 “NCG methods in spectral theory”, Geometry seminar, University of Patras
- Larnaca**, June 2016 “Almost regular Poisson manifolds”, Group Analysis of Differential Equations and Integrable Systems. 2016
- Göttingen**, June 2015 “The Baum-Connes conjecture for singular foliations”, Geometry seminar,
- Leuven**, May 2015 “Singular Subalgebroids”, Geometry seminar
- Penn State**, Apr. 2014 “The Baum-Connes conjecture for singular foliations”, Geometry seminar,
- Paris 7**, March 2015 “Singular Subalgebroids”, Operator Algebras seminar
- Zürich**, Feb. 2015 “Singular Subalgebroids”, Mathematical Physics Seminar, ETH
- Penn State**, Nov. 2014 Two lectures: “Integration of singular foliations and usage” and “Singular subalgebroids”
- Cortona**, June 2014 “Singular foliations, holonomy and their use”, conference “Topology and Analysis in interaction”
- Sanya (China)**, March 2014 “Singular foliations and their holonomy”, Séminaire Itenérand Geometry and Physics XII

- Göttingen**, Aug 2013 “Symmetries and the mathematical foundations of classical mechanics”, Summer school “Periodic Structures in Applied Mathematics”
- Bonn**, Aug. 2013 “Singular foliations and their holonomy”
- Zürich**, Dec. 2012 “Singular foliations and their holonomy”, Mathematical Physics Seminar, ETH
- Bucharest**, Sept. 2012 “The leafwise Laplacian of a singular foliation and its spectrum”, Seminar on Harmonic Analysis, Institute of Mathematics “Simon Stoilov”, Bucharest Academy of Sciences
- Shanghai**, July 2012 “The leafwise Laplacian of a singular foliation”, Franco-Chinese NCG meeting, Fudan University
- Bialoweiza**, June 2012 “The leafwise Laplacian and its spectrum”, XXXI Workshop on Geometric Methods in Physics
- Luminy**, Sept. 2010 “Pseudodifferential calculus for singular foliations”, Quantum Groups and NCG meeting
- Cardiff**, June 2010 “Pseudodifferential calculus for singular foliations”, EU-NCG 3rd Annual meeting
- Lisbon**, Feb. 2009 “The Lie functor for groupoids”, Poisson PT 2009, Instituto Superior Tecnico
- Coimbra**, Nov. 2008 “Realising singular foliations by groupoids”, Geometry Seminar, University of Coimbra
- Sheffield**, Nov. 2005 “Realising singular foliations by groupoids”, Geometry Seminar, University of Sheffield
- Zürich**, Oct. 2005 “Lie groupoids for singular foliations”, ETH Autumn meeting in Mathematical Physics
- Dublin**, Nov. 2004 “Realising singular foliations by Lie groupoids”, mid-term meeting of the EU-RTN “QSNG”. Dublin Institute of Advanced Studies
- Luminy**, June 2004 “Extensions of transitive Lie groupoids and their classification”, conference “Groups, locally compact quantum groups, groupoids”