

Alfonso Garmendia

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Interests

Singular Foliations theory, Symplectic Geometry, Poisson geometry, Lie theory (groups, algebras, groupoids and algebroids), non commutative geometry, PDE, Geometric Analysis, deformation quantization and applications in physics

Education

- 2015–2019** PhD. Mathematics, KU LEUVEN, Belgium.
Thesis: Groupoids and singular foliations.
Advisor: Marco Zambon
- 2010–2015** M.Sc. Mathematics, Universidad Central de Venezuela, Venezuela.
(the 3 year program became 5 because of the unrest situation in Venezuela)
Thesis: Functorial quantization.
Advisor: Mauricio Angel.
- 2005–2010** B.Sc. Mathematics, Universidad Central de Venezuela, Venezuela.
Thesis: Study of differential equations using geometric methods.
Advisor: Mauricio Angel.

Positions

- 2022–now** Senior Postdoc MdM, GEOMAP, Prof. Eva Miranda, CRM Barcelona, Spain.
- 2019–2021** Postdoc, Analysis group, Prof. Sylvie Paycha, Universität Potsdam, Germany
- 2015–2019** Researcher as PhD. Student, KU LEUVEN, Belgium.
- 2010–2015** Professor, Universidad Central de Venezuela, Venezuela.
- 2007–2010** Exercise session assistant, Universidad Central de Venezuela, Venezuela.

Languages

Spanish (native), English (fluent), French (intermediate), Dutch and German (basic).

RESEARCH

Publications

1. G, A. and Villatoro, J.: “**Integration of singular foliations via paths**”. International Mathematics Research Notices. <https://doi.org/10.1093/imrn/rnab177>, Sept 2021
2. G, A. and Zambon, M.: “**Quotients of singular foliations and Lie 2-group actions**” J. Noncommut. Geom. 15, no. 4, pp. 1251–1283, Dec 2021.
3. G, A and Yudilevich, O. “**On the inner automorphisms of a singular foliation**”. Mathematische Zeitschrift, 293(1):725–729, Oct 2019.
4. G, A. and Zambon, M.: “**Hausdorff morita equivalence of singular foliations**”. Annals of Global Analysis and Geometry, 55(1):99–132, Feb 2019.

Preprints

1. G,A. and Paycha, S: “**Principal bundle groupoids, their gauge group and their nerve**”. <https://arxiv.org/abs/2108.07352>

Work in progress

1. G,A: “**On connections of principal bundle groupoids**”.
2. G,A and Paycha, S: “**Bundle gerbes and principal bundle groupoids**”.

Selected list of talks

- 2022-July** **Principal Bundle Groupoids and Gerbes**
CRM Poisson Days. Barcelona, SPAIN.
- 2021-Sept** **A finite and infinite-dimensional meeting on Lie groupoids, Poisson geometry and integrability**
Wolfgang Pauli Institute. Vienna, AUSTRIA.
- 2020-Oct** **Hybrid Workshop: Koszul duality and Operads**
Centre International de Rencontres Mathématiques. Marseille, FRANCE.
- 2019-Sep** **Academic Visit: Quotients and Groupoids Fibrations**
Università degli Studi di Salerno. Salerno, ITALY.
- 2019-Jul** **Academic Visit: Morita equivalence for singular foliations**
Universitatea de Vest din Timisoara. Timisoara, RUMANIA.
- 2019-May** **Workshop on Singular Foliations**
KU Leuven. Leuven, BELGIUM.
- 2018-Oct** **Groupe de travail: “Feuilletages singuliers”**
Université Paris Diderot. Paris, FRANCE.
- 2018-Sep** **Training School: “QSPACE 2018”**
Centro de ciencias de Benasque Pedro Pascual. Benasque, SPAIN.
- 2017-Aug** **Conference: “Pure and Applied Differential Geometry - PADGE 2017”**
KU Leuven. Leuven, BELGIUM.
- 2017-Jul** **Summer School: “Topologic, Algebraic and Geometric Methods in QFT”**
Universidad de los Andes, Villa de Leyva, COLOMBIA.
- 2012-Mar** **Workshop: “XXV Jornadas Venezolanas de Matemáticas”**
Universidad de Oriente. Cumaná, VENEZUELA.

TEACHING

Lectures

2015-Spring	“Algebra II” undergraduate course, UCV.
2014-Fall	“Matemáticas I” undergraduate course, UCV.
2014-Spring	“Algebra I” undergraduate course, UCV.
2013-Fall	“Elementos de la matemática” undergraduate course, UCV.
2013-Spring	“Matemáticas II” undergraduate course, UCV.
2012-Fall	“Elementos de la matemática” undergraduate course, UCV.
2012-Spring	“Matemáticas II” undergraduate course, UCV.
2011-Fall	“Elementos de la matemática” undergraduate course , UCV.
2011-Spring	“Matemáticas I” undergraduate course , UCV.
2010-Fall	“Matemáticas I” undergraduate course, UCV.

Exercise sessions

2021-Spring	“Gauge Theory” undergraduate course, Universität Potsdam.
2021-Spring	“Mathematics for physicist II” undergraduate course, Universität Potsdam.
2020-Fall	“Mathematics for physicist I” undergraduate course, Universität Potsdam.
2020-Spring	“Heat Kernel” master course, Universität Potsdam.
2020-Spring	“Mathematics for physicist IV” undergraduate course, Universität Potsdam.
2019-Fall	“Mathematics for physicist III” undergraduate course, Universität Potsdam.
2018-Fall	“Differential Geometry” master course , KU Leuven.
2018-Fall	“Calculus en Analyse” undergraduate course, KU Leuven.
2018-Spring	“G-Structures” master course, KU Leuven.
2017-Fall	“Calculus en Analyse” undergraduate course, KU Leuven.
2016-Fall	“Calculus en Analyse” undergraduate course, KU Leuven.
2015-Fall	“Calculus en Analyse” undergraduate course, KU Leuven.
2010-Spring	“Matemáticas I” & “Matemáticas III” undergraduate courses, UCV.
2009-Fall	“Matemáticas I” & “Matemáticas III” undergraduate courses, UCV.
2009-Spring	“Matemáticas II” undergraduate course, UCV.
2008-Fall	“Matemáticas I” undergraduate course, UCV.
2008-Spring	“Matemáticas II” undergraduate course, UCV.
2007-Fall	“Matemáticas I” undergraduate course, UCV.

Part of the organization in the events

2021-Feb	International Online Conference: Microlocal and Global Analysis, Interactions with Geometry, <i>together with Prof. Sylvie Paycha.</i> Universität Potsdam. Potsdam, GERMANY.
2020-Oct	Virtual Workshop for Young Researchers: Singular Foliations and Related Structures, <i>together with Leonid Ryvkin.</i> Universität Potsdam and Universität Duisburg Essen, GERMANY.
2020-Feb	International Conference: Microlocal and Global Analysis, Interactions with Geometry, <i>together with Prof. Sylvie Paycha.</i> Universität Potsdam. Potsdam, GERMANY.
2019-May	Workshop on Singular Foliations, <i>together with Ori Yudilevich and Prof. Marco Zambon.</i> KU Leuven. Leuven, BELGIUM.
2018-Jul	Exposition of portraits: “Woman of Mathematics” Science Library of KU Leuven. Leuven, BELGIUM.
2017-Jun	“Forth Young Mathematicians Colloquium” Vrije Universiteit Brussels. Brussels, BELGIUM.

Learning Seminars organized

- Since Oct 2020** Webinar: “Good Morning SFARS”, together with Leonid Ryvkin. Universität Potsdam and Universität Duisburg Essen, GERMANY.
- 2020-Fall** “On integrability of Lie brackets”, together with Sylvie Paycha. Universität Potsdam.
- 2020-Spring** “On Index theory and Deformation quantization”, together with Mehran Seyedhosseini. Universität Potsdam.

Advising

- Malte Leimbach** I was his co-adviser with Prof. Sylvie Paycha since October 2020 for a Master thesis on Freie Universität Berlin on differential operators for foliations, from Oct 2020 till July 2021.
- Nicola de Feo** I was his informal host of an Erasmus exchange program at KU Leuven. We worked together with Prof. Marco Zambon on representations and integrability of Lie algebras from March till June 2018.

Teaching Training

- 2017-Feb** **Faculty educational program for PhD students**
KU Leuven. Leuven, BELGIUM.
- 2011-Feb** **Workshop: “1er Taller de experiencia docente”**
Universidad central de Venezuela. Caracas, VENEZUELA.

REFERENCES

- Eva Miranda:** UPC Barcelona, Spain.
email: eva.miranda@upc.edu
- Sylvie Paycha:** Universität Potsdam, Germany.
email: paycha@math.uni-potsdam.de
- Marco Zambon:** KU Leuven, Belgium.
email: marco.zambon@kuleuven.be