Curriculum Vitae

CARLOS PALAZUELOS

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September 2023

EDUCATION

Feb 2009 PhD in Mathematics, Facultad de CC. Matemáticas, *UCM* (Madrid).

- **Thesis:** *Tensor Products and Applications to Quantum Information Theory.*
- **Advisors:** David Pérez-García y Ignacio Villanueva Díez.
- **Distinctions:** *Doctorado Europeo* y *Premio Extraordinario de Doctorado* (2008/2009).

Jul 2023 Degree in Physics, Facultad de Ciencias, *UNED* (España).

Jun 2004 Degree in Mathematics, Facultad de CC. Matemáticas, *UCM* (Madrid).

RESEARCH INTERESTS

Functional Analysis and Quantum Information Theory

POSITIONS

- **2019-** Assistant Professor at Department of Mathematical Analysis and Applied Mathematics, UCM.
- **2014-2019** Ramón y Cajal position at the Department of Mathematical Analysis, UCM.
- **2011-2013** Juan de la Cierva position at ICMAT, CSIC.
- **2010-2011** Visiting Assistant Professor at the Department of Mathematics of the University of Illinois at Urbana-Champaign (USA).
- **2009-2010** Postdoctoral position at the Department of Mathematical Analysis, UCM.
- **2005-2009** PhD Fellowship-Contract at the Department of Mathematical Analysis, UCM.

PUBLICATIONS

- Number of publications : **42**
- Number of preprints : **1**
- Total citations (Google Scholar): **1450**
- H-index (Google Scholar): **20**

1. On the relation between completely bounded and $(1, cb)$-summing maps with applications to quantum XOR games. M. Junge, A. M. Kubicki, C. Palazuelos, I. Villanueva. **Journal of Functional Analysis**, 283, 109708 (2022).
2. Maximal gap between local and global distinguishability of bipartite quantum states. W. Correa, L. Lami, C. Palazuelos. **IEEE Transactions on Information Theory**, 68 (11), 7306-7314 (2022).
3. Genuine multipartite entanglement of quantum states in the multiple-copy scenario. C. Palazuelos, J. de Vicente. **Quantum**, 6, 735 (2022).

4. Asymptotic survival of genuine multipartite entanglement in noisy quantum networks depends on the topology. P. Contreras, C. Palazuelos, J. de Vicente. **Physical Review Letters**, 128, 220501 (2022).
5. Geometry of Banach spaces: A new route toward Position Based Cryptography. M. Junge, A. M. Kubicki, C. Palazuelos, D. Pérez-García. **Communications in Mathematical Physics**, 394, 625-678 (2022). 16th Conference on the Theory of Quantum Computation, Communication and Cryptography (**TQC 2021**).
6. Entanglement and superposition are equivalent concepts in any physical theory. G. Aubrum, L. Lami, C. Palazuelos, M. Plávala. **Physical Review Letters**, 128, 160402 (2022).
7. Entangleability of cones. G. Aubrum, L. Lami, C. Palazuelos, M. Plávala. **Geometric and Functional Analysis (GAFA)**, 31 (2), 181-205 (2021). 24th Workshop on Quantum Information Processing (**QIP 2021**). (highlighted in ICMAT Newsletter no. 23).
8. Genuine multipartite nonlocality is intrinsic to quantum networks. P. Contreras, C. Palazuelos, J. de Vicente. **Physical Review Letters**, 126, 040501 (2021). 16th Conference on the Theory of Quantum Computation, Communication and Cryptography (**TQC 2021**)
9. Unbounded Bell violations for quantum genuine multipartite non-locality. A. Amr, C. Palazuelos, J. de Vicente. **Journal of Physics A: Mathematical and Theoretical**, 53 (27) 275301 (2020).
10. Universal gaps for XOR games from estimates on tensor norm ratios. G. Aubrum, L. Lami, C. Palazuelos, S. Szarek, A. Winter. **Communications in Mathematical Physics**, 375, 679-724 (2020). International Congress of Mathematical Physics (**ICMP 2021**).
11. Optimal non-signalling violations via Tensor Norms. A. Amr, C. Palazuelos, I. Villanueva. **Revista Matemática Complutense**, 33, no. 3, 661-694 (2020).
12. Failure of the trilinear operator space Grothendieck theorem. J. Briët, C. Palazuelos. **Discrete Analysis**, 8 (2019).
13. A resource theory of entanglement with a unique multipartite maximally entangled state. P. Contreras, C. Palazuelos, J. de Vicente. **Physical Review Letters**, 122, 120503 (2019). 14th Conference on the Theory of Quantum Computation, Communication and Cryptography (**TQC 2019**).
14. Resource Quantification for the No-Programing Theorem. A. M. Kubicki, C. Palazuelos, D. Pérez-García. **Physical Review Letters**, 122, 080505 (2019). 22nd Workshop on Quantum Information Processing (**QIP 2019**).
15. Quantum Query Algorithms are Completely Bounded Forms. S. Arunachalam, J. Briet, C. Palazuelos. **SIAM Journal on Computing**, 48(3), 903-925 (2019). 22nd Workshop Quantum Information Processing (**QIP2019**).
16. Random constructions in Bell inequalities: A survey. C. Palazuelos. **Foundations of Physics**, 48, 857-885 (2018).
17. Ultimate Data Hiding in Quantum Mechanics and Beyond. L. Lami, C. Palazuelos, A. Winter. **Communications in Mathematical Physics**, 361, 661-708 (2018).
18. Classical versus quantum communication in XOR games. M. Junge, C. Palazuelos, I. Villanueva. **Quantum Information Processing**, 17:117 (2018).
19. Euclidean distance between gaussian and orthogonal matrices. C. González-Guillén, C. Palazuelos, I. Villanueva. **Journal of Theoretical Probability** 31(1), 93-118 (2018).
20. Hypercontractivity in group von Neumann algebras. M. Junge, C. Palazuelos, J. Parcet, M. Perrin. **Memoirs of American Mathematical Society** 249, no. 1183 (2017).
21. Random quantum correlations are generically non-classical. C. González-Guillén, C. Lancien, C. Palazuelos, I. Villanueva. **Annales Henri Poincaré** 18, 3793-3813 (2017).
22. CB-norm estimates for maps between noncommutative L_p-spaces and quantum channel theory. M. Junge, C. Palazuelos. **International Mathematics Research Notices** (3) 875-925 (2016).
23. Sampling quantum nonlocal correlations with high probability. C. González-Guillén, C. H. Jiménez, C. Palazuelos, I. Villanueva. **Communications in Mathematical Physics** 344, 141-154 (2016). 10th Conference on the Theory of Quantum Computation, Communication and Cryptography (**TQC 2015**)
24. Survey on Nonlocal Games and Operator Space Theory. C. Palazuelos, T. Vidick. **Journal of Mathematical Physics** 57, 015220 (2016)(Invited paper for Special Issue: Operator Algebras and Quantum Information Theory).
25. Reducing the number of inputs in nonlocal games. M. Junge, T. Oikhberg, C. Palazuelos. **Journal of Mathematical Physics** 57, 102203 (2016).
26. Channel capacities via p-summing norms. M. Junge and C. Palazuelos. **Advances in Mathematics** 272, 350-398 (2015) (highlighted in ICMAT Newsletter no. 9).

27. Hypercontractivity for free products. M. Junge, C. Palazuelos, J. Parcet, M. Perrin, E. Ricard. **Annales Scientifiques de l'École Normale Supérieure** 48 (4) 861-889 (2015).
28. Large bipartite Bell violations with dichotomic measurements. C. Palazuelos, Z. Yin. **Physical Review A** 92, 052313 (2015).
29. Rank-one Quantum Games. T. Cooney, M. Junge, C. Palazuelos and D. Pérez-García. **Computational Complexity** 24, 133-196 (2015).
30. Hypercontractivity in finite-dimensional matrix algebras. M. Junge, C. Palazuelos, J. Parcet, M. Perrin. **Journal of Mathematical Physics** 56, 023505 (2015).
31. On the largest Bell violation attainable by a quantum state. C. Palazuelos. **Journal of Functional Analysis** 267, 1959-1985 (2014).
32. Superactivation of quantum nonlocality. C. Palazuelos. **Physical Review Letters** 109, 190401 (2012) (highlighted in Physics 5, 124 (2012). 6th Workshop on Quantum Information Processing (**QIP 2013**).
33. Maurey-Rosenthal factorization for p-summing operators and Dodds-Fremlin domination. C. Palazuelos, E. A. Sánchez- Pérez and P. Tradacete. **Journal of Operator Theory** 68 (1), 205-222 (2012).
34. Large violation of Bell inequalities with low entanglement. M. Junge and C. Palazuelos. **Communications in Mathematical Physics** 306 (3), 695-746 (2011). 14th Workshop on Quantum information Processing (**QIP 2011**).
35. Connes' embedding problem and Tsirelson's problem. M. Junge, M. Navascues, C. Palazuelos, D. Pérez-García, V. B. Scholz and R. F. Werner. **Journal of Mathematical Physics** 52, 012102 (2011).
36. Unbounded violations of bipartite Bell Inequalities via Operator Space theory. M. Junge, C. Palazuelos, D. Pérez-García, I. Villanueva and M.M. Wolf. **Communications in Mathematical Physics** 300 (3),715-739 (2010).
37. Operator Space theory: a natural framework for Bell inequalities. M. Junge, C. Palazuelos, D. Pérez-García, I. Villanueva and M.M. Wolf. **Physical Review Letters** 104, 170405 (2010).
38. Factorizing multilinear operators on Banach spaces, C*-algebras and JB*-triples. C. Palazuelos, A. M. Peralta and I. Villanueva. **Studia Mathematica** 192 (2), 129-146 (2009).
39. Unbounded violation of tripartite Bell inequalities. D. Pérez-García, M.M. Wolf, C. Palazuelos, I. Villanueva and M. Junge. **Communications in Mathematical Physics** 279 (2) 455-486 (2008).
40. The natural rearrangement invariant structure on tensor products. C. Fernández-González, C. Palazuelos and D. Pérez-García. **Journal of Mathematical Analysis and Applications** 343, 40-47 (2008).
41. Orthogonally additive polynomials on C*-Algebras. C. Palazuelos, A. M. Peralta and I. Villanueva. **The Quarterly Journal of Mathematics** 59, 363-374 (2008).
42. Hahn-Banach extension of multilinear forms and summability. H. Jarchow, C. Palazuelos, D. Pérez-García, and I. Villanueva. **Journal of Mathematical Analysis and Applications** 336 (2), 1161-1177 (2007).

Popular science papers::

- Entrevista a Angelo Lucia, Premio José Luis Rubio de Francia 2017. C. Palazuelos. **La Gaceta de la RSME**, Vol. 21 Num. 3, Pag. 471-478 (2018).
- Ganar juegos usando la mecánica cuántica (Spanish). J. de Vicente, F. Lledó, D. Martínez, C. Palazuelos. **El País, Café y Teoremas** (2019).
- Por qué el entrelazamiento cuántico revoluciona nuestro entendimiento de la naturaleza. C. Palazuelos. **El País, Café y Teoremas** (2022).

Preprints:

- On the power of quantum entanglement in multipartite quantum XOR games. M. Junge, C. Palazuelos. Available in arXiv:2302.11800.

TALKS AND COURSES

Talks:

- (2023) **Mathematical Institute of the Budapest University of Technology and Economics**. Quantum Information Theory and Mathematical Physics 2023. Budapest (Hungary). Talk: *Quantum entanglement in XOR games.*
- (2023) **International Centre for Mathematical Sciences (ICMS)**. Analytical and Combinatorial Methods in Quantum Information Theory II. Edinburgh (Scotland). Talk: *On some recent results about quantum XOR games.*
- (2023) **Institute Mittag-Leffler**. Noncommutative Harmonic Analysis and Quantum Information. Stockholm (Sweden). Talk: *Entanglement vs classical communication in XOR games: An operator space approach.*
- (2022) **Instituto de Ciencias Matemáticas**. Functional Analysis, Quantum Computing and Beyond. Madrid (Spain). Talk: *Nonlocal Games and Functional Analysis.*
- (2019) **Universitat Jaume I, IMAC**. Math-Quantum Day. Castellón (Spain). Talk: *XOR games and Grothendieck's inequality.*
- (2019) **Instituto de Ciencias Matemáticas**. Thematic Research Program: Operator Algebras, Groups and Applications to Quantum Information. Workshop I. Madrid (Spain). Talk: *Grothendieck theorem for bilinear forms on C^*-algebras with applications to Quantum Information Theory.*
- (2018) **Facultad de C. C. Matemáticas, UCM**. XII Workshop of young Researchers in Mathematics. Madrid (Spain). Talk: *Quantum entanglement in nonlocal games.*
- (2018) **Mathematical Institute of the Budapest University of Technology and Economics**. Quantum Information Theory and Mathematical Physics 2018. Budapest (Hungary). Talk: *Classical XOR games with one-way communication.*
- (2018) **Instituto de Ciencias Matemáticas**. Bringing Young Mathematicians Together. Madrid (Spain). Talk: *Connetions between physical models and tensor norms.*
- (2017) **Institut Henri Poincaré**. Operator algebras and Quantum Information Theory. París (France). Talk: *Classical vs Quantum communication in XOR games.*
- (2017) **Texas A&M University**. Probabilistic and Algebraic methods in Quantum Information Theory. College Station, Texas (Spain). Talk: *Reducing the number of questions in nonlocal games.*
- (2017) **Instituto de Ciencias Matemáticas**. V International Workshop on Mathematical Foundations of Quantum Mechanics and its applications. Madrid (Spain). Talk: *Nonlocal games, operator spaces and the Connes embedding problem.*
- (2016) **École normale supérieure de Lyon**. Information and Complexity Day. Lyon (France). Talk: *Quantum channels and operator spaces.*
- (2016) **Mathematical Institute of the Budapest University of Technology and Economics**. Quantum Information Theory and Mathematical Physics. Budapest (Hungary). Talk: *Are random quantum strategies highly non-classical?*
- (2015) **Universidad de Murcia**. Congreso de jóvenes investigadores RSME. Murcia (Spain). Talk: *Canales Cuánticos: De la teleportación a los espacios L_p no conmutativos.*
- (2014) **National Centre of Competence in Research**. The Greatest Inspiration is Surely Non-locality. Riederalp (Switzerland). Talk: *Sampling quantum nonlocal correlations with high probability.*
- (2014) **Universidad del Pais Vasco**. First joint international meeting of the Italian and spanish mathematical societies -RSME-SCM-SEMA-SIMAI-UMI. Bilbao (Spain). Talk: *Bell inequalities from a mathematical point of view.*
- (2013) **Department of Applied Mathematics and Theoretical Physics of Cambridge University**, Cambridge (United Kingdom), Seminario: *Some recent results in quantum nonlocality.*
- (2013) **Universidad de Sevilla**. Congreso de jóvenes investigadores RSME. Sevilla (Spain). Talk: *Hipercontractividad no conmutativa.*
- (2013) **Instituto de Ciencias Matemáticas**. School and workshop: Topics in Operator Algebras and Applications. Madrid (Spain). Talk: *Operator algebras and quantum channels.*
- (2013) **Tsinghua University**. 16th Workshop on Quantum Information Processing (QIP 2013). Beijing (China). Talk: *Superactivation of quantum nonlocality.*
- (2012) **University of Wuhan**. Operator Spaces, Quantum Probability and Applications, Wuhan (China). Talk: *How nonlocal can a quantum state be?*

- (2012) **Banff International Research Station (BIRS)**. Operator structures in quantum information theory, Banff (Canada). Talk: *Studying Quantum Games with Operator Spaces.*
- (2011) **RSME**. Congreso de jóvenes investigadores RSME. Soria (Spain). Talk: *Quantum channel capacities and p-summing maps.*
- (2011) **La Manga del Mar Menor.** Integration, Vector Measures and Related Topics IV (Dedicated to Joe Diestel). Murcia (Spain). Talk: *On some subspaces of $L_1(\ell_\infty^n)$ and applications to Quantum Information.*
- (2011) **The Capella Sentosa**. 14th Workshop on Quantum information Processing (QIP 2011). Singapore (Singapore). Talk: *Large violation of Bell inequalities with low entanglement.*
- (2010) **Banff International Research Station (BIRS)**. Workshop on Noncommutative L_p spaces, Operator spaces and Applications, Banff (Canada). Talk: *Violation of Bell inequalities via operator spaces.*
- (2010) **Institut Mittag- Leffler**, Stockholm (Sweden). Seminario: *Quantum nonlocality from a mathematical point of view.*
- (2009) **Fields Institute**. Workshop on Operator Structures in Quantum Information, Toronto (Canada). Talk: *Operator Spaces: A natural language for Bell Inequalities.*
- (2009) **Centro de Estudios Superiores Felipe II**. Modern Functional Analysis. In honor of Fernando Bombal on his 65th birthday, Aranjuez (Spain). Talk: *Functional Analysis and Quantum Information.*
- (2008) **Fundación Ramón Areces**. International Workshop on the Mathematical Foundations of Quantum Control and Quantum Information Theory, Madrid (Spain). Talk: *Unbounded Violation of Tripartite Bell Inequalities.*
- (2008) **IV Encuentro de Análisis Funcional y Aplicaciones**, Salobrea (Spain). Talk: *La Estructura Natural de Espacio Invariante por Reordenamiento sobre el Producto Tensorial.*

Courses

- (2017) **Institut des Etudes Scientiques de Cargese**, Corsica (France). Summer School on "Mathematical Aspects of Quantum Information". Course: *Non-local games and operator spaces.*
- (2017) **Instituto de Ciencias Matemáticas (ICMAT)**, Madrid (Spain). Escuela JAE de Matemáticas (introducción a la Investigación). Course: *Grothendieck's theorem and applications to quantum information theory.*
- (2016) **University of Zhejiang**, Hangzhou (China), International Graduate Student Summer School: Quantum Correlations and Group C*-Algebra Theory. Course: *Quantum nonlocality, tensor norms and operator spaces.*
- (2013) **Instituto de Ciencias Matemáticas (ICMAT)**, Courses de Análisis y Aplicaciones, Madrid (Spain). Course: *Introduction to Quantum Information theory.*
- (2010) **Centro Internacional de Encuentros Matemáticos (CIEM)**, Workshop on Advanced topics of analysis applied to Quantum Information problems, Castro Urdiales (Spain). Course: *Operator Spaces and Bell Inequalities.*

GRANTS

- **March-July, 2024** Postdoc fellowship. *Estancias de personal docente y/o investigador senior en centros extranjeros.* (Institution: Fulbright Program and Ministerio de Universidades).
- **June 2013-** *Ramón y Cajal* Postdoc Contract/Fellowship (Institution: Ministerio de Economía y Competitividad, Spain).
- **2013** Postdoc fellowship Isaac Newton Institute for Mathematical Sciences. (Institution: Cambridge University, U.K.).
- **Dec. 2010- 2013** *Juan de la Cierva* Postdoc Contract/Fellowship (Institution: Ministerio de Ciencia e Innovación, Spain).
- **Dec. 2009- Dec. 2010** Postdoc position at the University of Illinois at Urbana-Champaign associated to NSF grant DMS-0901457.
- **Oct. 2010- Nov. 2010** Postdoc fellowship at Institute Mittag-Leffer.
- **May 2009- Dec. 2009** Postdoc fellowship associated to I- MATH project (subproject FUT-C4-0182) .
- **2005-2009** PhD Fellowship (Institution: Universidad Complutense de Madrid, Spain).

RESEARCH STAYS (longer than two weeks)

- **2017** Postdoc stay. Institut Henri Poincare (Paris, France). 8 weeks.
- **2016** Postdoc stay. University of Zhejiang (Hangzhou, China). 3 weeks.
- **2015** Postdoc stay. California Institute of Technology (Caltech) (California, USA). 2 weeks.
- **2013** Postdoc stay. Isaac Newton Institute for Mathematical Sciences (Cambridge, United Kingdom). 4-5 weeks.
- **2010** Postdoc stay. University of Illinois at Urbana-Champaign (Illinois, USA). 52 weeks.
- **2010** Postdoc stay. Institut Mittag-Leffler (Djursholm, Sweden). 5-6 weeks.
- **2008** Pre-doc. Instituto de Ciencias Fotónicas (Barcelona, Spain). 12 weeks.
- **2007** Pre-doc. University of Reading (Reading, United Kingdom). 12 weeks.

TEACHING

- **2024**
  - *Cálculo (both English and Spanish)*, Grado en Ingeniería Informática. Facultad de Informática, UCM.
- **2022 and 2023**
  - *Espacios de Banach*, Máster en Matemáticas Avanzadas. Facultad de CC. Matemáticas, UCM.
  - *Cálculo Diferencial*, Grado en Matemáticas. Facultad de Matemáticas, UCM.
  - *Elementos de Ecuaciones Diferenciales Ordinarias*, Doble Grado Economía- Matemáticas y Estadística. Facultad de Matemáticas, UCM.
- **2021**
  - *Computación Cuántica* (English), Máster en Métodos Formales en Ingeniería Informática. Facultad de Informática, UCM.
  - *Cálculo*, Grado en Ingeniería Informática. Facultad de Informática, UCM.
  - *Cálculo Diferencial*, Grado en Matemáticas. Facultad de Matemáticas, UCM.
  - *Elementos de Ecuaciones Diferenciales Ordinarias*, Doble Grado Economía- Matemáticas y Estadística. Facultad de Matemáticas, UCM.
- **2020**
  - *Computación Cuántica* (English), Máster en Métodos Formales en Ingeniería Informática. Facultad de Informática, UCM.
  - *Cálculo*, Grado en Ingeniería Informática. Facultad de Informática, UCM.
  - *Álgebra*, Grado en Ingeniería Informática. Facultad de Informática, UCM.
  - *Elementos de Ecuaciones Diferenciales Ordinarias*, Doble Grado Economía- Matemáticas y Estadística. Facultad de Matemáticas, UCM.
- **2019**
  - *Computación Cuántica*, Máster en Métodos Formales en Ingeniería Informática. Facultad de Informática, UCM.
  - *Métodos Matemáticos de la Ingeniería*, Grado en Ingeniería Informática. Facultad de Informática, UCM.
- **2018** *Métodos Matemáticos de la Ingeniería*, Grado en Ingeniería Informática. Facultad de Informática, UCM.
- **2016 and 2017**
  - *Espacios de Banach*, Máster en Matemáticas Avanzadas. Facultad de CC. Matemáticas, UCM.
  - *Métodos Matemáticos de la Ingeniería*, Grado en Ingeniería Informática. Facultad de Informática, UCM.
- **2015** *Métodos Matemáticos de la Ingeniería*, Grado en Ingeniería Informática. Facultad de Informática, UCM.
- **2014** *Cálculo Integral*, Doble grado: Matemáticas-Física y Matemáticas-Informática. Facultad de CC. Matemáticas, UCM.
- **2013** *Introduction to quantum information theory*, Curso de doctorado UCM, ICMAT-Facultad de CC. Matemáticas, UCM.
- **2011** *Matemáticas I*, Ingeniería Química, Facultad de Ciencias, Universidad Autónoma de Madrid.
- **2010** *MATH 231: Calculus II*, University of Illinois at Urbana-Champaign.
- **2007- 2008** *Análisis de Variable Real*, Facultad de CC. Matemáticas, UCM.

STUDENTS

- PhD students
  - **Jan 2021.** Abderraman Amr Rey. Facultad de CC. Matemáticas, UCM (co-supervisor: I. Villanueva)
  - **Jul 2021** Patricia Contreras Tejada. Instituto de Ciencias Matemáticas (co-supervisor: J. de Vicente)
  - **Sep 2021** Aleksander M. Kubicki. Universitat de Valncia (co-supervisor: M. Maestre, D. Pérez-García).
- Graduate students:
  - **2023** Luis Ariza. Trabajo de Fin de Grado. Facultad de CC. Matemáticas, UCM
  - **2021** Francisco Escudero. Trabajo de Fin de Máster. Facultad de CC. Matemáticas, UCM
  - **2020** David Román. Trabajo de Fin de Grado. Facultad de CC. Matemáticas, UCM
  - **2020** Victor Carrillo. Trabajo de Fin de Grado. Facultad de CC. Matemáticas, UCM
  - **2020** Julian Fdez-Montes. Trabajo de Fin de Grado. Facultad de CC. Matemáticas, UCM
  - **2019** Jorge Muñoz. Trabajo de Fin de Grado. Facultad de CC. Matemáticas, UCM
  - **2018** David Trillo. Trabajo de Fin de Master. Facultad de CC. Matemáticas, UCM
  - **2018** Luis Anadon. Trabajo de Fin de Grado. Facultad de CC. Matemáticas, UCM
  - **2017** David Trillo. Trabajo de Fin de Grado. Facultad de CC. Matemáticas, UCM
  - **2017** Pablo Macías. Trabajo de Fin de Grado. Facultad de CC. Matemáticas, UCM (co-dirección con J. A. Jaramillo)
  - **2016** Roberto Giménez. Beca: "Introducción a la invetigación" asociado a Severo Ochoa grant. ICMAT
  - **2016** David Trillo. Beca: "Introducción a la invetigación" asociado a Severo Ochoa grant. ICMAT
  - **2015** Iván Barragán. Trabajo de Fin de Grado. Facultad de CC. Matemáticas, UCM

ACADEMIC SERVICES

1. **Organization of events**

   - (Feb-Mar, 2023) Organizing Committee. *Research term: Quantum Information Theory* (Severo Ochoa program), Instituto de Ciencias Matemáticas.
   - (Sep-Oct, 2019) Organizing Committee. *Research term: Quantum Information Theory* (Severo Ochoa program), Instituto de Ciencias Matemáticas.
   - (14-19 July, 2019) Organizing Committee. *Workshop: The Many Faceted Connes Embedding Problem*, Banff International Research Station for Mathematical Innovation and Discovery (BIRS).
   - (March-June, 2019) Organizing Committee. *Research Term: Operator Algebras, Groups and Applications to Quantum Information* (Severo Ochoa program), Instituto de Ciencias Matemáticas.
   - (15-30 June, 2018) Organizing Committee. *Escuela JAE de Matemáticas*, Instituto de Ciencias Matemáticas.
   - (May 20- July 12, 2013) Organizing Committee. *Research Term on Operator Algebra Methods in Harmonic Analysis and Quantum Information*, Instituto de Ciencias Matemáticas.
   - (Dec. 2011- Feb. 2012). Organizing Committee. *Jornadas sobre Teoría de Información Cuántica*, Instituto de Ciencias Matemáticas.
   - (2014-2016) Organizer. Quantum Information seminar at UCM (http://www.mat.ucm.es/imi/QI/people.htm).

2. **Scientific Committees**

   - (2022) Reviewer. Agencia Estatal de Investigación (AEI) (Spain).
   - (2022) Scientific Committee. Grants: "Introducción a la invetigación" (JAE- School) associated to Severo Ochoa Project. Instituto de Ciencias Matemáticas.
   - (2021-) Executive Committee. Instituto de Ciencias Matemáticas (Spain).
   - (2020) Reviewer. State Research Agency (AEI) (Spain).
   - (2019) Reviewer. NWO Domain Science (The Netherlands).
   - (2016, 2017) Scientific Committee. Grants: "Introducción a la invetigación" (JAE- School) associated to Severo Ochoa Project. Instituto de Ciencias Matemáticas.
   - (2016) Reviewer. The Polish Ministry of Science and Higher Education.
   - (2015) Scientific Committee. TQC2015 (Theory of Quantum Computation, Communication and Cryptography) at Université libre de Bruxelles (Bélgica).
   - (2014) Scientific Committee. Postdoc contracts at ICMAT associated to SEVERO OCHOA project.
   - Reviewer for different journals (Mathematics, Physics and Computer Sciences)

RESEARCH PROJECTS

Current

- Análisis Matemático y Teoría de Información Cuántica (PID2020-113523GB-I00), MEC, IP: Carlos Palazuelos and David Pérez-García
- Quantum Information Technologies in Madrid (QUITEMAD+-CM) (Ref: P2018/TCS4342). CAM, IP: Alberto Ibort; Juan León; Vicente Martín; Miguel ngel Martín Delgado; David Pérez García
- Programa de excelencia Severo Ochoa (Ref: CEX2019-000904-S). MEC, PI: Diego Córdoba

Past

- Métodos Matemáticos en Información Cuántica (MTM2017-88385-P), MEC, IP: Carlos Palazuelos and Ignacio Villanueva
- Programa de excelencia Severo Ochoa (Ref: SEV-2015-0554), MEC, PI: Diego Córdoba
- Quantum Information Technologies Madrid (QUITEMAD) (Ref: S2013/ICE-2801), CAM, PI: M. Ángel Martín Delgado
- Las Matemáticas del entrelazamiento cuántico (MTM2014-54240-P), MEC, PI: David Pérez-García
- Programa de excelencia Severo Ochoa (Ref: SEV-2011-0087) , MEC, PI: Manuel de León Rodríguez
- Jornadas sobre Teoría de Información Cuántica (FUT-CEXT-0481), I- Math, PI: Carlos Palazuelos
- Entrelazamiento en sistemas cuánticos (MTM2011-26912), MCI, PI: David Pérez-García
- Quantum Engineering via Dissipation (QUEVADIS 233859), Comisión Europea PI: Frank Verstraete (Nodo Español: David Pérez-García)
- Tecnologías de Información cuántica: Criptografa, Computación y Simulación (QUITEMAD) (S2009/ESP-1594), CAM, PI: M. Ángel Martín Delgado
- Which is the dimension of my system? (Ref FUT-C4-0182), I-Math, PI: David Pérez-García
- Criptografía e Información cuántica (CCG08-UCM/Esp-4394), CAM-UCM, PI: David Pérez-García
- Matemáticas e Información cuántica (MTM2008-01366), MCI, PI: David Pérez-García
- Matemáticas e Información cuántica, CAM-UCM, PI: David Pérez-García
- Productos tensoriales y estructura multilineal de espacios de Banach y C^*-álgebras con aplicaciones a la computación cuántica (PR34/07-15903), Santander-UCM, IP: Ignacio Villanueva
- Operadores, Estructura y Geometría de espacios de Banach (UCM 910346), CAM-UCM, PI: Fernando Bombal
- Espacios funcionales, Operadores y Aplicaciones (PR 27/05 1404500082), Santander-UCM, PI: Francisco L. Hernández
- Operadores, Estructura de espacios de Banach y Aplicaciones (MTM2005-00082), MEC, PI: Fernando Bombal
- Operadores, Geometría y Estructura de espacios de Banach (MTM2004-01308), MEC, PI: Fernando Bombal