Anita Buckley | Curriculum Vitae

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Personal Information

Born July 18, 1975, in Ljubljana, Slovenia
Nationality: Slovene and Irish
Married, four children
Languages: Slovene, English, German, Serbo-Croatian and learning Italian

Education

- **2019-2021** Master in Informatics, Università della Svizzera italiana, Switzerland
  Thesis: *The mathematics of quantum information theory: Quantum Entanglement*
  (supervisors: prof. Stefan Wolf and dr. Charles Alexandre Bédard)
- **1999-2003** PhD in Mathematics, Mathematics Institute, University of Warwick, UK
  Thesis: *Orbifold Riemann–Roch for Threefolds and Applications to Calabi–Yaus*
  (supervisors: profs. Miles Reid and Balázs Szendrői)
- **1999** Obtained a high school teacher qualification
- **1994-1998** Studies of theoretical mathematics, University of Ljubljana, Slovenia
  Thesis: *Determinantal representations* (supervisor: prof. Tomaž Košir)
- **1989-1993** Matura, Natural sciences gymnasium, Idrija, Slovenia

Employment and positions held

- **2017-2019** Head for student affairs, Mathematics Department, University of Ljubljana
- **since 2010** Assistant professor (Docent) for mathematics at the University of Ljubljana
- **2004-2010** Teaching assistant for mathematics at the University of Ljubljana
- Researcher at IMFM Institute, Slovenian Ministry of Science
- Organiser of the I <3 MAT Colloquium for high school students

Computer skills

- MATHEMATICA for symbolic computations
- Scripting languages: MATLAB, Python

Teaching

University of Ljubljana

- Algebraic curves (for students of mathematics)
- Algebraic geometry (master's and PhD course)
- Linear algebra and Algebra (for students of mathematics)
- Calculus (for students of physics)
- Mathematics for bio-med engineers

SISSA, Trieste, Italy

- Algebraic surfaces, Toric varieties

Mentoring

- Supervision of 9 diploma/master thesis

Invited talks and presentations

- GAEL, Luminy in March 2002 on Linear systems of plane curves with base points of equal multiplicity.
- ANU, Canberra in August 2003 on Orbifold Riemann - Roch and applications to Calabi - Yau threefolds.
- SISA, Trisete in September 2003 on Constructing 3-folds via graded rings.
- AG weekend, Ljubljana in November 2003 on Smooth Calabi-Yau 3-folds in codimension 4.
- Workshop of AG, Trieste in April 2004 on Calabi-Yau 3-folds in weighted homogeneous varieties.
- TULS weekend, Ljubljana in May 2006 on Self-adjoint determinantal representations of cubic surfaces.
- EUROSIM 2007, Ljubljana in September 2007 on Computing Dedekind sums using the Euclidean algorithm.
- EUROSIM 2007, Ljubljana in September 2007 on Construction of self-adjoint determinantal representations of smooth cubic surfaces.
- School (and workshop) on the geometry of algebraic stacks, Trento in September 2008 on Plane Curves as Pfaffians.
- Workshop GeoLMI on the geometry and algebra of linear matrix inequalities, Toulouse in November 2009 on Pfaffian Representations and Elementary Transformations.
- Geometry and Algebra of Orbifolds and the McKay Correspondence, Warwick in August 2010 on Orbifold Riemann-Roch and Hilbert series.
- Conference on Geometry: Theory and Applications, Ljubljana in June 2013 on Determinantal representations of cubic curves.
- Linear Algebra Workshop LAW, Ljubljana in June 2014 on Simultaneously self-adjoint sets of matrices.
- Workshop of Algebraic Geometry,Trieste in February 2015 on Matrices defining elliptic curves.
- ACM Bundles on Algebraic Varieties, Ankara, Turkey in June 2015 on Matrices defining plane curves.
- 4th Najman Conference on Spectral Problems for Operators and Matrices, Opatija, Croatia in September 2015 on Simultaneously self-adjoint sets of 3x3 matrices (presented by Tomaz Kosir).
- Algebra and Geometry Meeting, Barcelona, Spain in November 2016 on Positive semidefinite determinantal representations of nonnegative polynomials.
- 8th Linear Algebra Workshop, Ljubljana in June 2017 on Indecomposable matrices defining plane cubics.
- 8th Linear Algebra Workshop, Ljubljana in June 2017, WORKING GROUP (with Klemen Sivic) on Positive maps.
- Sums of Squares - Real Algebraic Geometry and its Applications, Innsbruck, Austria in August 2017 on Positive semidefinite quadratic determinantal representations of plane sextics.
- ILAS - Conference of the International Linear Algebra Society, Rio de Janeiro, Brazil in July 2019 on Extremal positive maps that are not completely positive (presented by Klemen Sivic).

Papers

- A. Buckley, M. Zompatori: On the transversality of restricted linear systems, Le Matematiche, Vol LVI (2001), Fasc. II, pp. 231-241.
- A. Buckley, M. Zompatori: Linear systems of plane curves with a composite number of base points of equal multiplicity, Trans. Amer. Math. Soc. 355 (2003), no. 2, 539–549.
- A. Buckley, B. Szendroi : Orbifold Riemann-Roch for threefolds with an application to Calabi-Yau geometry, J. Algebraic Geom. 14 (2005), no. 4, 601–622.
- A. Buckley, T. Košir: Determinantal representations of smooth cubic surfaces, Geometriae Dedicata, 125 (2007), 115–140.
- A. Buckley, T. Košir: Plane Curves as Pfaffians, Annali Della Scuola Normale Superiore di Pisa-Classe di Scienze, 2010.
- A. Buckley: Elementary Transformations of Pfaffian Representations of Plane Curves, Linear Algebra and its Applications, 433, no. 4 (2010), 758–780.
- A. Buckley, M. Reid, S. Zhou: Ice cream and orbifold Riemann?Roch, Izvestiya: Mathematics, Volume 77 (2013), Issue 3.
- A. Buckley, T. Košir: Simultaneously self-adjoint sets of 3*3 matrices, Rend. Istit. Mat. Univ. Trieste, Volume 47 (2015).
- A. Buckley: Indecomposable matrices defining plane cubics, Operators and Matrices, special issue in honor of Leiba Rodman (2016).
- A. Buckley, K. Sivic: Nonnegative biquadratic forms with maximal number of zeros, 2016 [arXiv].
- A. Buckley, B. Plestenjak: Explicit determinantal representations of up to quintic bivariate polynomials, Linear and Multilinear Algebra, 2017.
- A. Buckley, K. Sivic: New examples of extremal positive linear maps, Linear Algebra and its Applications, 2020.
- A. Buckley: New examples of entangled states on $\mathbb{C}^3 \otimes \mathbb{C}^3$, `https://arxiv.org/pdf/2112.12643.pdf`

References

- Professor Tomaž Košir, (algebraic geometry), University of Ljubljana, Slovenia
  tomaz.kosir@fmf.uni-lj.si
- Professor Primož Potočnik, (discrete mathematics), University of Ljubljana, Slovenia
  primoz.potocnik@fmf.uni-lj.si
- Professor Stefan Wolf, (MSc thesis advisor), Università della Svizzera italiana, Switzerland
  stefan.wolf@usi.ch
- Professor Partick Eugster, Università della Svizzera italiana, Switzerland
  patrick.eugster@usi.ch