

Dario SPIRITO

CURRENT POSITION

NOVEMBER 2021 – today

Ricercatore a tempo determinato tipologia “B” in Algebra
University of Udine

MARCH 2020 – NOVEMBER 2021

Ricercatore a tempo determinato tipologia “A” in Algebra
University of Padova

JULY 2017 – FEBRUARY 2020

Post-doc (“Assegno di ricerca”) in Algebra
University of Roma Tre
Title: “Metodi topologici nella teoria degli anelli commutativi”
 (“Topological methods in the theory of commutative rings”)

EDUCATION

JUNE 2016 PhD in MATHEMATICS
Università degli Studi “Roma Tre”
Thesis: “Spaces of closure operations on rings and numerical semigroups”
Advisor: Prof. Marco FONTANA

JULY 2012 Master’s degree in MATHEMATICS
Università degli Studi “Roma Tre”
110/110 *cum laude*
Thesis: “Closure operations and star operations in commutative rings”
Advisor: Prof. Marco FONTANA

JULY 2010 Undergraduate Degree in MATHEMATICS
Università degli Studi “Roma Tre”
110/110 *cum laude*

JULY 2007 Liceo scientifico “Aristotele”, Roma | Final Grade: 100/100 *cum laude*

PUBLICATIONS

1. *Some topological considerations on semistar operations* (with Carmelo Finocchiaro), *Journal of Algebra* **409** (2014), 199-218.
2. *Star operations on numerical semigroups*, *Communications in Algebra* **43**(7) (2015), 2943–2963.
3. *Star operations on numerical semigroups: The multiplicity 3 case*, *Semigroup Forum* **91**(2) (2015), 476–494.
4. *New distinguished classes of spectral spaces: a survey* (with Carmelo Finocchiaro e Marco Fontana), in: S. Chapman, M. Fontana, A. Geroldinger, B. Olberding (edi-

- tor), *Multiplicative Ideal Theory and Factorization Theory: Commutative and Non-Commutative Perspectives*, Capitolo 5 (2016).
5. *Spectral spaces of semistar operations* (with Carmelo Finocchiaro e Marco Fontana), *Journal of Pure and Applied Algebra* **220**(8) (2016), 2897–2913.
 6. *A topological version of Hilbert’s Nullstellensatz* (with Carmelo Finocchiaro e Marco Fontana), *Journal of Algebra* **461** (2016), 25–41.
 7. *Topology, intersections and flat modules* (with Carmelo Finocchiaro), *Proceedings of the American Mathematical Society* **144**(10) (2016), 4125–4133.
 8. *Star operations on numerical semigroups: antichains and explicit results*, *Journal of Commutative Algebra* **11**(3) (2019), 401–431.
 9. *Jaffard families and localizations of star operations*, *Journal of Commutative Algebra* **11**(2) (2019), 265–300.
 10. *Topological properties of semigroup primes of a commutative ring* (with Carmelo Finocchiaro e Marco Fontana), *Beiträge zur Algebra und Geometrie* **58**(3) (2017), 453–476.
 11. *Non-compact subsets of the Zariski space of an integral domain*, *Illinois Journal of Mathematics* **60**(3–4) (2017), 791–809.
 12. *Towards a classification of stable semistar operations on a Prüfer domain*, *Communications in Algebra* **46**(4) (2018), 1831–1842.
 13. *Embedding the set of non-divisorial ideals of a numerical semigroup into \mathbb{N}^n* , *Journal of Algebra and its Applications* **17**(11) (2018), 1850205.
 14. *The upper Vietoris topology on the space of inverse-closed subsets of a spectral space and applications* (with Carmelo Finocchiaro e Marco Fontana), *Rocky Mountain Journal of Mathematics* **48**(5) (2018), 1551–1583.
 15. *Calculating the density of solutions of equations related to the Pólya-Ostrowski group through Markov chains*, *Acta Arithmetica* **186**(4) (2018), 319–336.
 16. *The sets of star and semistar operations on semilocal Prüfer domains*, *Journal of Commutative Algebra* (to appear).
 17. *Topological properties of localizations, flat overrings and sublocalizations*, *Journal of Pure and Applied Algebra* **223**(3) (2019), 1322–1336.
 18. *The Zariski topology on sets of semistar operations without finite-type assumptions*, *Journal of Algebra* **513** (2018), 27–49.
 - *Corrigendum to “The Zariski topology on sets of semistar operations without finite-type assumptions”*, *Journal of Algebra* (to appear).
 19. *Star operations on Kunz domains*, *International Electronic Journal of Algebra* **25** (2019), 171–185.
 20. *Vector subspaces of finite fields and star operations on pseudo-valuation domains*, *Finite Fields and Their Applications* **56** (2019), 17–30.

21. *When the Zariski space is a Noetherian space*, Illinois Journal of Mathematics **63**(2) (2019), 299–316.
22. *The number of star operations on numerical semigroups and on related integral domains*, in: Barucci V., Chapman S., D’Anna M., Fröberg R. (editor), *Numerical Semigroups*, Springer INdAM Series **40**, Springer (2020).
23. *When two principal star operations are the same*, in: Facchini A., Fontana M., Geroldinger A., Olberding B. (editor), *Advances in Rings, Modules and Factorizations. Rings and Factorizations 2018*, Springer Proc. Math. Stat. **321**, Springer (2020).
24. *Topological properties of subsets of the Zariski space*, in: Gładki P., Koenigsmann J., Koprowski P., Kubiś W., Kučera R., Kuhlmann F.-V., Mišík L. (editor), *Proceedings of the 5th Joint Conferences on Algebra, Logic and Number Theory*, Banach Center Publications **121**, Polish Academy of Sciences (2020).
25. *The Golomb topology on a Dedekind domain and the group of units of its quotients*, Topology and Its Applications **293** (2020), 107101.
26. *The Golomb topology of polynomial rings*, Quaestiones Mathematicae **44** (2021), no. 4, 447–468.
27. *An ultrapower analogue of the Kronecker function ring* (with Alan Loper), Fundamenta Mathematicae **252** (2021), no. 1, 103–119.
28. *The Zariski-Riemann space of valuation domains associated to pseudo-convergent sequences* (with Giulio Peruginelli), Transactions of the American Mathematical Society **373**(11) (2020), 7959–7990.
29. *Decomposition and classification of length functions*, Forum Mathematicum **32**(5) (2020), 1109–1129.
30. *Wilf’s conjecture for numerical semigroups with large second generator*, Journal of Algebra and Its Applications (2021), no. 11, 2150197.
31. *Suprema in spectral spaces and the constructible closure* (with Carmelo Finocchiaro), New York Journal of Mathematics **26** (2020), 1064–1092.
32. *Multiplicative closure operations on ring extensions*, Journal of Pure and Applied Algebra **225**(4) (2021), 106555.
33. *Multiplicative properties of Integer valued Polynomials over split-quaternions* (with Antonio Cigliola e Francesca Tartarone), Communications in Algebra **49**(3) (2021), 1338–1351.
34. *The Golomb space is topologically rigid* (with Taras Banakh e Sławomir Turek), Commentationes Mathematicae Universitatis Carolinae **62**(3) (2021), 347–360.
35. *Asymptotic for the number of star operations on one-dimensional Noetherian domains*, Journal of the Korean Mathematical Society **58**(5) (2021), 1239–1260.
36. *Extending valuations to the field of rational functions using pseudo-monotone sequences* (with Giulio Peruginelli), Journal of Algebra **586** (2021), 756–786.
37. *Radicals of principal ideals and the class group of a Dedekind domain*, Pacific Journal of Mathematics **314**(1) (2021), 219–231.

38. *Metrizability of spaces of valuation domains associated to pseudo-convergent sequences* (with Giulio Peruginelli), *Journal of Algebra and Its Applications* (to appear).
39. *The derived sequence of a pre-Jaffard family*, *Mediterranean Journal of Mathematics* **19**(4) (2022), 146.
40. *Isolated points of the Zariski space*, *New York Journal of Mathematics* **28** (2022), 800–823.
41. *The polynomial closure is not topological* (with Giulio Peruginelli), *Journal of Pure and Applied Algebra* **226**(12) (2022), 107133.

Preprint:

1. *Almost Dedekind domains without radical factorization* (arXiv: 2111.02102).
2. *Polynomially Independent Subsets and Generalized Nagata Rings* (with Alan Loper).
3. *Localizations of integer-valued polynomials and of their Picard group* (arXiv: 2205.11312).

CONFERENCE TALKS

AMS Sectional Meeting, Special Session on Closure Operations in Commutative Algebra
(Invited Speaker)

Georgetown University, March 8–9, 2015
Semistar operations and topology

Giornate di Geometria Algebrica ed argomenti correlati (Invited Speaker)

Università di Catania, May 25–28, 2016
Proprietà topologiche di insiemi di sovraanelli

Recent Advances in Commutative ring and Module Theory

Bressanone, June 14–17, 2016
Topological properties of sets of overrings of an integral domain

International Meeting on Numerical Semigroups with Applications (Invited Speaker)

Levico Terme, July 4–8, 2016
Star operations on numerical semigroups

Meeting of the Catalan, Spanish, Swedish Math Societies, Session on Numerical Semigroups and Applications

Umeå, June 12–15, 2017
Star operations and shapes of the set of non-divisorial ideals

Conference on Rings and Factorizations

Graz, February 19–23, 2018
Jaffard families and extension of star operations

ALaNT 5 – Joint Conferences on Algebra, Logic and Number Theory

Bedlewo, June 24–29, 2018
Topological properties of subsets of the Zariski space

International Meeting on Numerical Semigroups (Invited Speaker)

Cortona, September 3–7, 2018
Star operations on numerical semigroups

Joint Mathematics Meeting 2021, Special Session on Commutative Rings: Ideals, Modules, and Factorizations (Invited Speaker)

6–9 gennaio 2021

Extending valuation domains through pseudo-monotone sequences, II

Conference on Rings and Polynomials 2021

Graz, 19–24 luglio 2021

Jaffard and pre-Jaffard families

Algebra, Topology and their Interactions (Invited Speaker)

Udine, 7–8 settembre 2021

The Golomb topology on Dedekind domains

AMS Sectional Meeting, Special Session on Multiplicative Ideal Theory in Honor of the Career of William Heinzer (Invited Speaker)

26–27 marzo 2022

Almost Dedekind domains without radical factorization

OTHER TALKS

Università degli Studi “Roma Tre”, May 6, 2013

Operazioni star su semigruppri numerici | Star operations on numerical semigroups

Università degli Studi “Roma Tre”, June 3, 2014

Operazioni semistar spettrali ed eab: analogie e differenze | Spectral and eab semistar operations: analogies and differences

City University of New York, February 13, 2015

The Zariski topology on sets of semistar operations

George Mason University, February 27, 2015

The Zariski topology on sets of semistar operations

Università di Padova, November 21, 2017

Estensioni di operazioni star e famiglie di Jaffard | Extensions of star operations and Jaffard families

Università di Padova, July 11, 2018

Decomposition and classification of length functions

Ohio State University, October 15, 2018

The sets of star and semistar operations on a Prüfer domain

Università di Padova, December 4, 2018

Sottoinsiemi non compatti dello spazio di Zariski | Non-compact subsets of the Zariski space

Università di Udine, 26 aprile 2022

Uso di insiemi derivati in algebra commutativa | Use of derived subsets in commutative algebra

PROFESSIONAL ACTIVITIES

Referee for the following journals:

Algebra Universalis, Communications in Algebra, Communications of the Korean Mathematical Society, International Electronic Journal of Algebra, Journal of Algebra and Its Applications, Journal of Commutative Algebra, Journal of Pure and Applied Algebra, Matematicki Vesnik, Portugaliae Mathematica, Rendiconti del Circolo Matematico di Palermo, Ricerche di Matematica, Rocky Mountain Journal of Mathematics, Topology and its Applications.

Reviewer for Mathematical Reviews and Zentralblatt MATH.

Proofreading for the book *Rings, Modules and Closure Operations* by Jesse Elliott, published by Springer.

AWARDS

- 2011 INDAM scholarship for Master's students
- 2007 INDAM scholarship for undergraduate students
- 2007 Gold medal at the national stage of the International Mathematical Olympiad

TEACHING POSITIONS

- 2022 Biometria e Gestione Dati, I modulo
Corso di laurea in Allevamento e salute animale
Dipartimento di Scienze agroalimentari, ambientali e animali, Università di Udine
- 2022 Analisi Matematica II
Co-titular
Corso di laurea in Ingegneria gestionale
Dipartimento di Ingegneria, Università di Udine
- 2022 Analisi Matematica II
Co-titular
Corso di laurea in Ingegneria meccanica
Dipartimento di Ingegneria, Università di Udine
- 2021 Istituzioni di Matematica
Corso di laurea in Biologia Molecolare
Dipartimento di Biologia, Università di Padova
- 2020 Istituzioni di Matematica
Corso di laurea in Biologia Molecolare
Dipartimento di Biologia, Università di Padova
- 2020 Algebra lineare e geometria, canale 5
Co-titular
Dipartimento di Ingegneria dell'Informazione, Università di Padova, year 2019/2020
- 2019 Corso avanzato di algebra commutativa noetheriana e omologica
Advanced course in Noetherian and homological commutative algebra
Ph.D. course
Università di Roma Tre

Teaching assistance

- 2019 Teaching assistant – AL210 – Algebra 2 (Algebra)
prof. Francesca Tartarone
Dipartimento di Matematica e Fisica, Università di Roma Tre
- 2017 Teaching assistant – AL210 – Algebra 2 (Algebra)
prof. Stefania Gabelli
Dipartimento di Matematica e Fisica, Università di Roma Tre
- 2016 Teaching assistant – AL210 – Algebra 2 (Algebra)
prof. Stefania Gabelli
Dipartimento di Matematica e Fisica, Università di Roma Tre
- 2016 Teaching assistant – AL310 – Istituzioni di Algebra Superiore (Field and Galois Theory)
prof. Stefania Gabelli
Dipartimento di Matematica e Fisica, Università di Roma Tre
- 2012 “Tutore” – AC310 – Analisi complessa (Complex Analysis)
prof. Edoardo Sernesi
Dipartimento di Matematica, Università di Roma Tre

2010 “Tutore” – AC310 – Analisi complessa (Complex Analysis)
prof. Lucia Caporaso
Dipartimento di Matematica, Università di Roma Tre

2010 “Tutore” – TE1 – Teoria delle equazioni e teoria di Galois (Field and Galois Theory)
prof. Francesco Pappalardi
Dipartimento di Matematica, Università di Roma Tre

RESEARCH SOJOURNS

September 2014–march 2015: reeseearch activity at the George Mason University (Fairfax, Virginia), in collaboration with prof. Neil Epstein