

SILVIA PROPERZI

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CURRENT POSITION

November 2022 – present

PhD student at Vrije Universiteit Brussel, Brussels, Belgium

EDUCATION

October 2021

Master's degree in Mathematics, University of Pisa, Italy (110/110 cum laude)
Thesis: [Hopf Galois theory and Hopf Galois correspondence: the case of minimal structures](#).

September 2017

Bachelor's degree in Mathematics, University of Pisa, Italy (97/110)
Thesis: Gruppi nilpotenti finitamente generati.

PUBLICATIONS

Preprints

June 2026

E. Jespers, T. Letourmy, S. Properzi, M. Trombetti, A. Van Antwerpen, *Free Skew Braces and Free Solutions of the Yang–Baxter Equation*, ([ArXiv:2606.27056](#)).

March 2026

S. Properzi, Y. Qin, *L-algebras and their ideals: from simplicity to semidirect products*, ([ArXiv:2512.08579](#)).

September 2024

C. Dietzel, E. Feingesicht, S. Properzi, *On Dehornoy's representation for the Yang–Baxter equation*, ([ArXiv:2409.10648](#)).

Journal Articles

August 2026

R. Cascella, S. Properzi, A. Van Antwerpen, *Finiteness conditions on skew braces and solutions of the Yang–Baxter equation*, *Mediterranean Journal of Mathematics*, Volume 23 (6), 187. ([ArXiv:2603.06177](#)).

February 2025

S. Properzi, A. Van Antwerpen, *Common divisor graphs for skew braces*, *Journal of Pure and Applied Algebra*, Volume 229, Issue 2, 2025, 107876. ([ArXiv:2306.12415](#))

October 2024

C. Dietzel, S. Properzi, S. Trappeniers, *Indecomposable involutive set-theoretical solutions to the Yang–Baxter equation of size p^2* , *Communications in Algebra*, 53(3), 1238–1256. ([ArXiv:2403.18653](#))

GRANTS & AWARDS

Personal grants

November 2023 – October 2027

FWO PhD Fellowship (salary + 3720 euros yearly travel grant)
[Skew braces, quivers, and applications to the Yang–Baxter equation](#).

November 2022 – October 2023

OZR backup mandate
[Skew braces, quivers, and applications to the Yang–Baxter equation](#).

Travel grants

January 2026

Research group organization grant “Is there an analogue of the Nielsen-Schreier theorem for skew braces?” at the [Banach Center](#) in Będlewo, Poland

October 2025

Oberwolfach Leibniz Graduate Student travel grant for the [Oberwolfach mini-workshop 2544b: “The Yang–Baxter Equation and Representations of Braid Groups”](#)

May 2025

VUB Doctoral School Travel grant for research visit “Study of combinatorial solutions to the Yang–Baxter equation and its associated algebraic structures” to University of Leeds

June 2024

VUB Doctoral School Travel grant for the Summer School “[Combinatorial Hopf algebras and modern Lie theory with applications](#)” Nordfjordeid, Norway

September 2023

FWO travel grant for workshop abroad “Lean for the Curious Mathematician 2023” Düsseldorf

Prizes

September 2026

1st prize at the poster competition,
<https://www.maths.tcd.ie/IMS2026/>

RESEARCH ACTIVITY

Research Visits

- 25 - 29 May 2026 Research visit at University of Naples Federico II, Naples, Italy
(host M. De Falco and C. Musella) - 1 week
- 1 - 11 February 2026 Research visit at University of Maynooth, Maynooth, Ireland
(host A. Van Antwerpen) - 1 week
- 26 - 31 January 2026 Research group: “Is there an analogue of the Nielsen-Schreier theorem for skew braces?”, Będlewo, Poland
(Partially funded by the Banach Center) - 1 week
- 12-16 May 2025 Research visit at University of Leeds, Leeds, UK
(host: I. Colazzo) - 1 week
- 29 January - 3 February 2025 Research visit at LMNO, University of Caen, Caen, France
Supported by the International Emerging Actions project of FWO and CNRS
(hosts: V. Lebed and E. Feingessicht)

Invited Talks

- October 2026 *Free skew braces: a construction in the right nilpotent setting*, [European Non-Associative Algebra Seminar](#), online event
- September 2026 *Orbit Finiteness in Skew Braces*, [LMS Midlands regional meeting and workshop 2026](#), Keele, UK
- September 2026 *Free skew braces and free solutions of the Yang–Baxter equation*, [EWM 2026 General Meeting](#), Mini-symposium: Combinatorial Yang–Baxter Equation and Skew Braces, Warwick, UK
- October 2025 *Skew braces, indecomposability and Dehornoy’s representations for solutions to the Yang–Baxter equation*, [The Yang–Baxter Equation and Representations of Braid Groups \(Oberwolfach mini-workshop 2544b\)](#), Oberwolfach, Germany
- April 2025 *Involutive indecomposable solutions to the Yang–Baxter equation of prime-squared size*, [IX International Workshop on Non-Associative Algebras in Lisbon](#), Lisbon, Portugal
- October 2023 *Graphs, groups and skew braces*, [Workshop on Algebra in l’Aquila 2023](#), L’Aquila, Italy

Seminar talks

- May 2026 *Indecomposability of solutions to the Yang–Baxter equation via skew braces*, Seminar, Naples, Italy
- May 2025 *Skew Braces, the YBE, and some results in the classification of solutions*, [Algebra seminar](#), Leeds, UK
- February 2024 *Graphs, group actions and skew braces*, Séminaire d’algèbre et de géométrie Caen, Caen, France

Contributed talks

- September 2026 *From indecomposable solutions to the Yang–Baxter equation to irreducible representations*, [Braiding New Ground: Vertex algebras meet Yang–Baxter equation](#), Maynooth, Ireland
- May 2026 *The Algebra Behind the Yang–Baxter Equation*, [May12](#), online event
- April 2026 *Skew braces, the YBE, and Dehornoy’s representation*, [Introduction to Modern Advances in Algebra](#), Leeds, UK
- June 2025 *On the irreducibility of monomial representations for set-theoretical solutions to the Yang–Baxter equation*, [Advances in Group Theory and Applications 2025](#), Naples, Italy
- December 2024 *Indecomposable involutive solutions to the Yang–Baxter equation of prime-squared size*, [Biracks and Biquandles: Theory, applications, and new perspectives](#), Leeds, UK
- May 2024 *Groups acting transitively on solutions to the Yang–Baxter equation*, [Symmetric groups & Lie-theoretic friends](#), Birmingham, UK
- May 2024 *Indecomposable involutive solutions to the Yang–Baxter equation of size p^2* , [Skew Braces, Braids and the Yang–Baxter Equation \(24w5201\)](#), Banff, Canada
- February 2024 *Graphs, group actions and skew braces*, [Introduction to Modern Advances in Algebra](#), Exeter, UK
- July 2023 *A common divisor graph for skew braces*, [Young Researchers Algebra Conference 2023](#), L’Aquila, Italy
- June-July 2023 *A common divisor graph for skew braces*, [LOOPS’23](#), Będlewo, Poland
- June 2023 *A common divisor graph for skew braces*, [Groups, Rings and the Yang–Baxter equation 2023](#), Blankenberge, Belgium

April 2023 *A graph associated with finite skew braces*, [The Interplay Between Skew Braces and Hopf-Galois Theory](#), Keele University, Keele, UK

ACADEMIC SERVICE

Organised events

January 2026 - present Organiser (with L.Vendramin and C. Roelants): [VUB Algebra Seminar](#)

June 2026 Local organiser: [VUB-Leeds Algebra School \(2026\)](#), Brussels, Belgium

May 2026 Organiser (with C. Roelants): [Movie night: Women in mathematics](#)

January 2026 Organiser (with M. Trombetti and A. Van Antwerpen): Research group: “Is there an analogue of the Nielsen-Schreier theorem for skew braces?”, Banach Center in Będlewo, Poland

September 2024 - December 2025 Organiser (with L.Vendramin and K. Piterman): [VUB Algebra Seminar](#)

June 2025 Local organizer: [The Yang–Baxter equation and all that](#), Będlewo, Poland

April 2025 Local organizer: [HOPF25](#), Brussels, Belgium

June 2023 Local organizer: [Groups, rings, and the Yang–Baxter equation](#), Blankenberge, Belgium

Peer review

Journals: Proceedings of the American Mathematical Society, Journal of Pure and Applied Algebra, Communications in Algebra, Bulletin of the Belgian Mathematical Society – Simon Stevin.

Teaching

A.Y. 2023–2026 Exercise sessions: Galois Theory (Ba 3 Mathematics, VUB)

A.Y. 2024–2026 Exercise sessions: Ring and Module Theory (Ba 2 Mathematics, VUB)

Mentoring

A.Y. 2025 - 2026 (semester 2) B. Pitts, Bachelor Project 2: *Jacobson’s commutativity Theorem*

A.Y. 2025 - 2026 (semester 1) B. Pitts, Bachelor Project 1: *Dedekind-finite rings*

A.Y. 2024 - 2025 (semester 2) E. L. Sodemann, Bachelor Project 2: *Ore’s conjecture*

SCHOOLS & COURSES

March 2026 [Course: Nichols algebras and root systems](#) for Francqui VUB-Leerstael 2025-2026, Brussels, Belgium

September 2025 [Summer School “Computer Algebra with OSCAR”](#), Pfalzakademie, Lambrecht, Germany (Funded by the organisation)

April 2025 [GAP Days Spring 2025](#), Brussels, Belgium

June 2024 [Combinatorial Hopf algebras and modern Lie theory with applications](#), Nordfjordeid, Norway (Funded by VUB doctoral school and organisation)

September 2023 [Lean for the Curious Mathematician 2023 \(LftCM 2023\)](#), Düsseldorf, Germany (Funded by FWO travel grant and LftCM 2023 organization)

August 2022 [GAP mini-course](#), Brussels, Belgium (hybrid)

LANGUAGES

Italian: Native
English: Upper-intermediate (B2, Academic Writing Advanced)
French: Intermediate
Dutch: Beginner