Michele Serra
Curriculum Vitae

Università Konstanz – Office F409
Post Fach 196
Fach. Mathematik und Statistik
78457 Konstanz – Germany
☎ *+49 7531/88-2585*
✉ *michele.serra@uni-konstanz.de*
⌂ *www.math.uni-konstanz.de/ serra*

Personal information

first name	Michele
last name	Serra
citizenship	Italian
born	30 Sep. 1988 in Cagliari (Italy)

Mathematical interests

My interests include commutative algebra, Galois theory, algebraic and arithmetic geometry, valuation theory, ordered structures and mathematics and science popularization. I am now working on Hahn groups and Hahn fields, related structures and their automorphism groups. In the past, I have been working on permanence criteria for Hilbertian fields and varieties of Hilbert type. Besides, I am also interested in the applications of pure mathematics, especially algebra, geometry and logic to other fields of science and humanities, in particular linguistics and machine learning.

Education

Nov. 2021   **PhD in Mathematics**, *Konstanz University*, Supervisor: Prof. Dr. Salma Kuhlmann, Thesis title: "Automorphism groups of Hahn groups and Hahn fields".
Grade: 1,0 - Magna cum Laude

Oct. 2016 –
Au. 2017   **Teaching assistant**, *Konstanz University*.

Jan. 2014 –
Aug. 2016   **PhD candidate in Mathematics**, *Konstanz University*, Supervisor: Jun.-Prof. Dr. Arno Fehm.
Project called off for personal reasons

Sep. 2011 –
Jul. 2013   **Double Master Degree in Mathematics**, *Università degli Studi di Padova (Italy) and Universiteit Leiden (The Netherlands)*, ALGANT (ALgebra Geometry And Number Theory) – Erasmus Mundus Master Programme.
Info on the ALGANT Master Program: `www.algant.eu`

Sep. 2007 –
Jul. 2011   **Bachelor Degree in Mathematics**, *Università degli Studi di Cagliari (Italy)*.
Grade: 110/110 cum Laude.

Sep. 2009 –
Feb. 2010   **Licence de Mathématique**, *Université Joseph Fourier, Grenoble 1 (France)*, Erasmus Exchange Program.

Publications

2021   **On Rayner structures**, *with L. S. Krapp and S. Kuhlmann*, Communications in Algebra, arXiv:2004.03239.

Preprints

2021   **The automorphism group of a valued field of generalised formal power series**, *with S. Kuhlmann*.

In preparation

2021   **Automorphisms of Hahn groups**, *with S. Kuhlmann*.

2021   **Generalised power series determined by linear recurrence relations**, *with L. S. Krapp and S. Kuhlmann*.

Theses

PhD Thesis **Automorphism groups of Hahn groups and Hahn fields**, *Advisor: Prof. Dr. Salma Kuhlmann*, Language: English, Institute: Universiteit Leiden, Defended on 12.11.2021 at the University of Konstanz. Grade: 1,0 - Magna cum Laude.

Master Thesis **Smooth models of curves**, *Advisors: Dr. David Holmes and Prof. Marco A. Garuti*, Language: English, Institute: Universiteit Leiden, Defended on 01-07-13 at Leiden University and on 08-07-13 at Bordeaux University.
Available at: `http://www.math.leidenuniv.nl/nl/theses/356/`

Bachelor Thesis **Curvature formulas for implicit curves and surfaces (*Original title:* Formule per la curvatura di curve e superfici in forma implicita**, *Advisor: Dr. Stefano Montaldo*, Language: Italian, Institute: Università degli Studi di Cagliari.
Available at: `https://www.dropbox.com/s/rhe0ltoyaxywkea/serra_bachelor_thesis.pdf`

Teaching

(WS = Winter Semester; SS = Summer Semester)

SS 2021 **Teaching assistant for Algebra II and Number theory (B4)**, *course by Prof. Dr. S. Kuhlmann*, with L. S. Krapp and S.-T. Hess.

SS 2021 **Proseminar Algebra and Number Theory**, with L. S. Krapp and M. Schick.

WS 2010/21 **Proseminar Lineare Algebra**, with S. Krapp.

WS 2020/21 **Konsolidierung der Grundlagen, Mathematik**, *HTWG Konstanz*, as main instructor.

SS 2020 **Exercises for Lineare Algebra II (B2)**, *course by Prof. Dr. S. Kuhlmann*, with S. Müller.

WS 2019/20 **Exercises for Lineare Algebra I (B1)**, *course by Prof. Dr. S. Kuhlmann*, with S. Müller.

SS 2019 **Exercises for Lineare Algebra II (B2)**, *course by Dr. S. Burgdorf*.

WS 2018/19 **Exercises for Lineare Algebra I (B1)**, *course by Prof. Dr. O. Schnürer*, with S. Burgdorf.

SS 2018 **Bachelor Berichtseminar**, organised with Prof. Dr. S. Kuhlmann.

WS 2017/18 **Bachelor Fachseminar**, organised with Prof. Dr. S. Kuhlmann.

SS 2017 **Exercises for Algebraische Zahlentheorie (B4)**, *course by Prof. Dr. S. Kuhlmann*, with S. Müller.

March 2017 **Profinite Groups**, *compact seminar*, with Prof. Dr. S. Kuhlmann.

Supervision

ongoing **Sophia-Elena Mauch**, *On number theory and cryptography*, Master of Education.
with Prof. Salma Kuhlmann

SS 2018 **Ruben Gihr**, *Eine Abhandlung über die Galoistheorie*, Zulassungsarbeit.
with Prof. Salma Kuhlmann

SS 2017 **Pia Steinmeyer**, *Über die Proauflösbarkeit der absoluten Galoisgruppe von $\mathbb{Q}_p$*, Bachelor Thesis.
with Prof. Salma Kuhlmann

Talks and Poster presentations

12 May 2021 "Automorphism groups of Hahn groups and Hahn fields" – Vortrag über wesentlichen Ergebnisse der Dissertation, Konstanz, Germany

26 Apr. 2021 "The automorphism group of a valued field of generalised formal power series" – Oberseminar Math. Logik, Mengenlehre und Modelltheorie, Konstanz, Germany

16 Dec. 2019 "From Laurent series to strongly linear automorphisms of Hahn fields" – Oberseminar Math. Logik, Mengenlehre und Modelltheorie, Konstanz, Germany

25 Sep. 2019 "Automorphism groups of Hahn fields and the canonical lifting property" – DMV-Jahrestagung 2019 - Sektion Logik und Theoretische Informatik, Karlsruhe, Germany

11 Jun. 2019 Poster: "Automorphism groups of Hahn groups and Hahn fields" – Model Theory of Valued Fields and Applications, Münster, Germany

12 Nov. 2018 "Hahn groups, Hahn fields and their groups of automorphisms" – Oberseminar *Math. Logik, Mengenlehre und Modelltheorie* at Konstanz University.

28 Jun. 2016 "Permanence criteria for varieties of Hilbert type" – *Geometric and Combinatorial Methods in Number Theory* at Iași, Romania

20 Nov. 2015 "On Hilbertian fields and varieties of Hilbert type" – Oberseminar *Reelle Geometrie und Algebra* at Konstanz University.

07 May 2015 "Field extensions of finite abelian-simple length and Hilbertianity" – Berichtseminar at Konstanz University.

29 Jan. 2015 "Haran's Diamond Theorem, part II" – Berichtseminar at Konstanz University.

22 Jan. 2015 "Haran's Diamond Theorem, part I" – Berichtseminar at Konstanz University.

05 Dec. 2014 "Varietà e campi Hilbertiani" for the *Seminari dei Baby Geometri* at Pisa University, Italy.

13 Nov. 2014 "Function fields are Hilbertian" – Berichtseminar at Konstanz University.

08 Jul. 2013 "Smooth models of curves" – ALGANT Master thesis defence at Bordeaux University, France.

01 Jul. 2013 "Smooth models of curves" – ALGANT Master thesis defence at Leiden University, The Netherlands.

22 Apr. 2013 "The Theorem of Deligne-Mumford" for the course *Topics in Algebraic Geometry* at Leiden University, The Netherlands.

11 Mar. 2013 "Normal Schemes and Birational Morphisms" for the course *Topics in Algebraic Geometry* at Leiden University, The Netherlands.

24 Aug. 2012 "Two notable constructions in Differential Geometry" for the *Seminario Studenti* at Padova University, Italy.

26 Apr. 2011 "Non orientable minimal surfaces and Costa's surface" for a seminar on Minimal Surfaces at Cagliari University, Italy.

(co-)Organized events

May. 2019 **Symposium of the ALGANT Alumni Network – Benasque (ES), 22-26 May 2019**, *International conference*, Organised with: B. Barucchieri, D. Casazza, R. Gualdi.
http://benasque.org/2019aan/

Oct. 2018 **Real Algebraic Geometry and Model Theory – Konstanz, 8-9 October 2018**, *International Conference*, Organised with: L. S. Krapp, G. Lehéricy, P. Michalski, S. Müller.
http://www.math.uni-konstanz.de/~krapp/RAGMT/index.html

Jul. 2015 **Galois Theory and Number Theory – Konstanz, 18-24 July 2015**, *Summer school supported by the French-German University and the ERC*, Main Organisers: L. Bary-Soroker, P. Dèbes, A. Fehm, Z. Rudnick.
http://www.math.uni-konstanz.de/~fehm/summerschool.html

Editorial Activity

2020 **Realisation of a question catalogue for the course "Advanced Mathematics"**, *IUBH*.
https://www.iubh-fernstudium.de/

Attended events

Jul. 2018 **Donau-Rhein Model Theory and Applications – Basel (CH), 13 July 2018**, *International Conference*, Organisers: P. Habegger, A. Martin-Pizarro, S. Kuhlmann, M. Thomas, T. Kaiser.
https://sites.google.com/site/drmta3/

Mar. 2018 **Model Theory of Valued Fields – Paris (FR), 5-9 March 2018**, *Workshop*, Organisers: Z. Chatzidakis, A. Ducros, M. Hils, T. Scanlon.
http://modvac18.math.ens.fr/W2.html

Dec. 2017 **Donau-Rhein Model Theory and Applications – Passau (DE), 2 December 2017**, *International Conference*, Organisers: P. Habegger, A. Martin-Pizarro, S. Kuhlmann, M. Thomas, T. Kaiser.
http://www.fim.uni-passau.de/professur-reine-mathematik/donau-rhein-modelltheorie-seminar/

Jun. 2016 **Geometric and Combinatorial Methods in Number Theory – Iași (RO), 27 June- July 2016**, *International Conference*, Organisers: M. Aprodu, P. Dèbes, R. Lițcanu, C. Oniciuc.
http://www.math.uaic.ro/~gcmnt/

Jun. 2016 **New methods in Birational Geometry – Toulouse (FR), 22-25 June 2016**, *Summer school*, Organisers: M. Bernardara, M. Bolognesi, M. Lahoz.
http://www.cimi.univ-toulouse.fr/complex-geometry-and-beyond/en/new-methods-birational-geometry

May 2016 **Giornate di Geometria Algebrica e Argomenti Correlati – Catania (IT), 25-28 May 2016**, *Conference*, Organisers: A. F. Lopez, A. Ragusa, F. Russo.
http://ricerca.mat.uniroma3.it/users/lopez/GGAACXIII/GGA2016.html

| Sep. 2015 | **Diophantine Equations – Hay-on-Wye (GB), 15-19 September 2015**, *Summer school supported by the London Mathematical Society*, Organisers: Tim and Vladimir Dokchitser. `http://www.maths.bris.ac.uk/~matyd/DE/` |

Languages

Italian	native speaker
Sardinian	native speaker
English	fluent
German	proficient
French	good
Spanish	elementary

Skills

Computer	Familiar with the C programming language, LaTeX and with the following operating systems: Windows, Linux (Ubuntu, Slackware, Open Suse, Fedora). Some familiarity with Wolfram Mathematica (mainly for curves and surfaces rendering) and Sage (mainly for computational number theory, algebra and algebraic geometry). Basic knowledge of HTML.
Music	20 years experience in playing saxophone in rock and jazz bands and symphonic wind orchestras.

Other interests

Music (especially Jazz, both listening and playing on saxophone and shakuhachi), table tennis, cooking, politics, fair trade, poetry, writing, theatre, drawing and painting.

Konstanz, November 22, 2021

michele serra