

Curriculum Vitae of Matty Van Son

PERSONAL DETAILS

NAME: Matty Van Son

DATE OF BIRTH: 26 May 1994

CITIZENSHIP: Irish

INSTITUTION: University of Liverpool, Department of Mathematical Sciences,
Honorary Research Associate

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WEBPAGE: mattyvanson.github.io/mattyvanson

EDUCATION

[2016-2020] PhD in Mathematics, University of Liverpool

Title: *Extended Markov numbers and integer geometry*

[2015-2016] MSc in Mathematical science, University of Liverpool

[2012-2015] BSc in Theoretical Physics and Mathematics, NUI Maynooth

POSTDOCTORAL POSITIONS

[2022-2025] The Open University, School of Mathematics & Statistics,
Postdoctoral Research Associate (The Farey Framework),
EPSRC grant EP/W002817/1

[2021-2022] TU Wien, Institute of Discrete Mathematics and Geometry,
Projektassistent (FWF), Postdoctoral Research Assistant

RESEARCH EXPERIENCE

• **Research areas:**

- **Geometry:** Geometry of numbers, geometric continued fractions, discrete differential geometry, lattice geometry, hyperbolic geometry, Farey complex
- **Number theory:** Markov numbers and extensions, Diophantine approximation, continued fractions
- **Knot theory:** Energy of knots

• **Supervision:**

- Supervisor as part of Nuffield Research Placements & Experiences (2024)

- Co-supervisor of EPSRC DTP funded 10-week internship. Resulting paper to appear. (2024)

CONFERENCE AND SEMINAR ORGANISATION

Co-organiser of the workshop *Geometry, Combinatorics, and Markov Numbers*, Liverpool, UK, May 2020 (Supported by LMS Workshop Grant - WS-1920-05 and RCMM Grant - 1211KAR/02) (postponed due to the coronavirus pandemic)

Organiser of the seminar "Selected Topics in Mathematics - Online Edition" since February 2021

PUBLICATIONS

- [1] S. Benzair, I. Short, M. van Son, and A. Zabolotskii. Enumerating tame friezes over $\mathbb{Z}/n\mathbb{Z}$. *arXiv:2410.23400, preprint*.
- [2] O. Karpenkov and M. Van Son. Geometry of multidimensional Farey summation algorithm and frieze patterns. *arXiv:2410.13091, preprint*.
- [3] I. Short, M. van Son, and A. Zabolotskii. Frieze patterns and Farey complexes. *Advances in Mathematics*, 472, 2025.
- [4] M. van Son. Equations of the Cayley Surface. *arXiv:2108.02441, preprint*.
- [5] O. Karpenkov and M. van Son. Generalised Markov numbers. *Journal of Number Theory*, 213:16–66, 2020.
- [6] M. van Son. Uniqueness conjectures for extended Markov numbers. *arXiv:1911.00746, preprint*.
- [7] M. van Son. Palindromic Sequences of the Markov Spectrum. *Mathematical Notes*, 106:457–467, 2019.
- [8] O. Karpenkov and M. van Son. Generalized Perron Identity for broken lines. *Journal de théorie des nombres de Bordeaux*, 31:131–144, 2019.