

Maxime Fairon | Mathematics

School of Mathematics and Statistics – University of Glasgow
University Place, G12 8QQ – Glasgow – UK

✉ Maxime.Fairon@glasgow.ac.uk • 🏠 maths.gla.ac.uk/~mfairon/

Research interests : Integrable systems, Non-commutative Poisson geometry, Poisson algebras

Employment

University of Glasgow

Rankin-Sneddon Research Fellow

Glasgow, UK

Since Aug. 19

University of Leeds

Teaching Assistant

Leeds, UK

Oct. 15 – May 19

Education

University of Leeds

PhD in Pure Mathematics. Thesis : Multiplicative Quiver Varieties and Integrable Particle Systems

Leeds, UK

(2019)

Université Catholique de Louvain

Master in Mathematics. Master Thesis : Graded Geometry and Applications (in French)

Louvain, BE

(2015)

Université Catholique de Louvain

BSc in Mathematics. Bachelor Thesis : KAM Theorem and Diffeomorphisms on the Circle (in French)

Louvain, BE

(2013)

Université Catholique de Louvain

BSc in Physics

Louvain, BE

(2012)

Publications

1. **Morphisms of double (quasi-)Poisson algebras and action-angle duality of integrable systems.** Accepted, Annales Henri Lebesgue (2021). [arXiv:2008.01409](https://arxiv.org/abs/2008.01409)
2. **A decoupling property of some Poisson structures on $\text{Mat}_{n \times d}(\mathbb{C}) \times \text{Mat}_{d \times n}(\mathbb{C})$ supporting $\text{GL}(n, \mathbb{C}) \times \text{GL}(d, \mathbb{C})$ Poisson-Lie symmetry** [with L. Fehér]. Journal of Mathematical Physics 62, 033512 (2021). [doi:10.1063/5.0035935](https://doi.org/10.1063/5.0035935)
3. **Trigonometric real form of the spin RS model of Krichever and Zabrodin** [with L. Fehér, I. Marshall]. Annales Henri Poincaré 22, 615–675 (2021). [doi:10.1007/s00023-020-00976-4](https://doi.org/10.1007/s00023-020-00976-4), [arXiv:2007.08388](https://arxiv.org/abs/2007.08388)
4. **Double quasi-Poisson brackets : fusion and new examples.** Algebr. Represent. Theory 24, 911–958 (2021). [doi:10.1007/s10468-020-09974-w](https://doi.org/10.1007/s10468-020-09974-w), [arXiv:1905.11273](https://arxiv.org/abs/1905.11273)
5. **On the Hamiltonian formulation of the trigonometric spin Ruijsenaars-Schneider system** [with O. Chalykh]. Letters in Mathematical Physics 110, 2893–2940 (2020). [doi:10.1007/s11005-020-01320-x](https://doi.org/10.1007/s11005-020-01320-x), [arXiv:1811.08727](https://arxiv.org/abs/1811.08727)
6. **Spin versions of the complex trigonometric Ruijsenaars-Schneider model from cyclic quivers.** Journal of Integrable Systems, Volume 4, Issue 1, xyz008 (2019). [doi:10.1093/integr/xyz008](https://doi.org/10.1093/integr/xyz008), [arXiv:1811.08717](https://arxiv.org/abs/1811.08717)
7. **Multiplicative quiver varieties and generalised Ruijsenaars-Schneider models** [with O. Chalykh]. Journal of Geometry and Physics 121, 413–437 (2017). [doi:10.1016/j.geomphys.2017.08.006](https://doi.org/10.1016/j.geomphys.2017.08.006), [arXiv:1704.05814](https://arxiv.org/abs/1704.05814)
8. **Introduction to graded geometry.** European Journal of Mathematics 3 (2), 208–222 (2017). [doi:10.1007/s40879-017-0138-4](https://doi.org/10.1007/s40879-017-0138-4), [arXiv:1512.02810](https://arxiv.org/abs/1512.02810)

Submitted preprints

- i. **Superintegrability of Calogero-Moser systems associated with the cyclic quiver** [with T.F. Görbe]. [arXiv:2101.05520](https://arxiv.org/abs/2101.05520)
- ii. **On the noncommutative Poisson geometry of certain wild character varieties** [with D. Fernández]. [arXiv:2103.10117](https://arxiv.org/abs/2103.10117)
- iii. **Euler continuants in noncommutative quasi-Poisson geometry** [with D. Fernández]. [arXiv:2105.04858](https://arxiv.org/abs/2105.04858)
- iv. **Integrable systems on multiplicative quiver varieties from cyclic quivers.** [arXiv:2108.02496](https://arxiv.org/abs/2108.02496)

Thesis

- a. **Multiplicative Quiver Varieties and Integrable Particle Systems.** theses.whiterose.ac.uk/24498

Awards

BMC/BAMC 2021 conference – Poster prize	Apr. 2021
Recognition of Research Excellence (<i>University award for excellence in PhD thesis</i>)	Sep. 2019
LMS Early Career Research Travel Grant (<i>Awarded to visit L. Fehér in Szeged, HU</i>)	May 2019
University of Leeds 110 Anniversary Research Scholarship	Sep. 2015 - Mar. 2019

Talks and Presentations

Conferences and Workshops :

Quivers in non-commutative quasi-Poisson geometry <i>XIII IACU</i>	(Talk) July 2021 – online
What is... the elliptic Calogero-Moser space? <i>ARTIN 56</i>	(Talk) Nov. 2019 – Edinburgh, UK
From double brackets to integrable systems <i>YRMIS</i> <i>DART IX</i>	(Talk) June 2019 – Cergy-Pontoise, FR Aug. 2018 – Leeds, UK
Noncommutative Poisson geometry and integrable systems <i>JGPW2020</i> <i>NCDRT 2019</i>	(Talk) Sep. 2020 – online Apr. 2019 – Leeds, UK
Integrable systems on (multiplicative) quiver varieties <i>Conference in memory of B. Dubrovin</i>	(Poster/short talk) June 2021 – online
Coloured quivers in non-commutative quasi-Poisson geometry <i>VirtARTA 2021</i>	(Poster/recorded talk) May 2021 – online
Generalised RS systems from cyclic quivers <i>BMC-BAMC 2021</i>	(Poster/recorded talk) Apr. 2021 – online
Trigonometric real form of the spin RS model of Krichever and Zabrodin <i>15th YRWGMC</i>	(Poster/recorded talk) Dec. 2020 – online
Noncommutative Poisson geometry and integrable systems <i>Sherbrooke Meeting on Representation Theory of Algebras</i>	(Poster/short talk) Sep. 2020 – online
Moment map and integrability in non-commutative (quasi-)Poisson geometry <i>Representation Theory, Mathematical Physics and Integrable Systems</i> <i>Geometric aspects of momentum maps and integrability</i>	(Poster) June 2018 – CIRM (Luminy), FR Apr. 2018 – Ascona, CH
Multiplicative quiver varieties and generalised Ruijsenaars-Schneider models <i>FDIS 2017</i>	(Poster) July 2017 – CRM (Barcelona), ES

Seminars :

Quivers in non-commutative quasi-Poisson geometry	May 2021 – Geneva, CH (online)
Des carquois et des systèmes intégrables	Mar. 2021 – Angers, FR (online)
Isomorphisms of double (quasi-)Poisson algebras	Nov. 2020 – Glasgow, UK (online)
Generalised RS systems from cyclic quivers	Oct. 2020 – Berkeley, USA (online)
What is... the elliptic Calogero-Moser space?	Dec. 2019 – Glasgow, UK
From double brackets to integrable systems	Oct. 2019 – Edinburgh, UK
Espaces de Calogero-Moser elliptiques	June 2019 – Lyon, FR
From double brackets to integrable systems	Mar. 2019 – Glasgow, UK
The spin trigonometric RS system and its underlying quiver	Nov. 2018 – Geneva, CH
Hamiltonian formulation for the spin trigonometric RS system	Nov. 2018 – Durham, UK
Understanding the Calogero-Moser system with double Poisson brackets	Sep. 2018 – Szeged, HU
Multiplicative quiver varieties and generalised Ruijsenaars-Schneider models	Oct. 2017 – Leeds, UK

Scientific Meetings Attended

XIII IACU <i>International Algebraic Conference in Ukraine</i>	6-9 July 2021 – Online
Conf. in memory of B. Dubrovin <i>Integrable Systems in Geom. & Math. Phys.</i>	28 June-2 July 2021 – Online
VirtARTA 2021 <i>Advances in Repr. Th. of Algebras</i>	17-28 May 2021 – Online
JGPW2021 <i>Junior Global Poisson Workshop</i>	3-5 Mai 2021 – Online
BMC-BAMC 2021 <i>British Mathematical Colloquium</i>	6-9 Apr. 2021 – Online
15th YRWGMC <i>Young Researchers Work. on Geom., Mechanics and Control</i>	1-4 Dec. 2020 – Online
Sherbrooke Meeting on Representation Theory of Algebras	25-26 Sep. 2020 – Online
JGPW2020 <i>Junior Global Poisson Workshop</i>	14-16 Sep. 2020 – Online
Qolloquium <i>Quivers, Representations, Resolutions</i>	25 June 2020 – Online
Lie theory and integrable systems in symplectic and Poisson geometry	5-7 June 2020 – Online
Gone Fishing 2020 <i>Gel'fand-Zeitlin systems</i>	14-16 May 2020 – Online
ARTIN56 <i>Algebra and Representation Theory in the North</i>	28-29 Nov. 2019 – Edinburgh, UK
YRMIS <i>Young Researchers Meeting in Integrable Systems</i>	13-14 June 2019 – Cergy-Pointoise, FR
CQI Workshop <i>Brackets, Reduction, and Integrability</i>	17-18 May 2019 – Leeds, UK
NCDRT 2019 <i>New Connections and Directions in Repr. Th. and Related Topics</i>	15-17 Apr. 2019 – Leeds, UK
DART IX <i>Differential Algebra and Related Topics</i>	30 July-2 Aug. 2018 – Leeds, UK
Representation Theory, Mathematical Physics and Integrable Systems	4-8 June 2018 – CIRM (Luminy), FR
CQI Workshop <i>Geometry, Topology and Integrability</i>	11-12 May 2018 – Leeds, UK
Geometric aspects of momentum maps and integrability	8-13 Apr. 2018 – Ascona, CH
LMS Regional meeting and workshop on Modern Geometry and Physics	18-21 Sep. 2017 – Loughborough, UK
ARTIN51 <i>Lie Theory, Representation Theory and Algebraic Groups</i>	11-14 Sep. 2017 – Manchester, UK
FDIS2017 <i>Finite Dim. Integrable Systems in Geometry and Math. Phys.</i>	3-7 July 2017 – CRM (Barcelona), ES
21st UK Meeting on Integrable Models, CFT and Related Topics	2-3 June 2017 – Leeds, UK
CQI Workshop <i>Symmetries in Classical and Quantum Integrable Systems</i>	12-13 May 2017 – Leeds, UK
British Isles Graduate Workshop <i>Higgs bundles: geometric perspectives</i>	2-8 Apr. 2017 – Isle of Wight, UK
QUANTMOD <i>Quantization and Moduli Spaces</i>	9-13 Jan. 2017 – Luxembourg, LU
Integrable Day <i>Algebra, Geometry and Integrability</i>	25 Nov. 2016 – Loughborough, UK
GAP XIV <i>Graded Geometry and Applications to Physics</i>	8-12 Aug. 2016 – Sheffield, UK
Poisson 2016 <i>Summer School</i>	27 June - 2 July 2016 – Geneva, CH
Algebraic Curves, Special Functions, and Integrability	24 June 2016 – Leeds, UK
CQI Workshop <i>Poisson Geometry and Integrability</i>	14-15 May 2016 – Leeds, UK

Teaching Experience

At the University of Glasgow :

△ Classical and Quantum Integrability	(20-21: 1-hour lecture for UK PhD students)
△ MATHS3019 - Mathematical Methods	(19-20,20-21,21-22: tutoring and marking)
△ MATHS4101 - Differential Geometry	(19-20,20-21,21-22: lecturing, tutoring, marking)

At the LMS Undergraduate Summer School (Leeds, July 2019) :

△ ADE - Amazing Diagrams Everywhere	(tutor for S. Gratz's 3 hours course)
△ Combinatorial low-dimensional topology	(tutor for S. Schleimer's 3 hours course)

At the University of Leeds :

△ MATH1012 - Mathematics 2	(18-19 : tutoring and marking)
△ MATH1026 - Sets, Sequences and Series	(16-17, 17-18, 18-19 : tutoring and marking)
△ MATH1055 - Numbers and Vectors	(15-16, 16-17, 17-18 : tutoring and marking)
△ MATH1060 - Introductory Linear Algebra	(15-16 : tutoring and marking)
△ MATH2016 - Analysis	(16-17 : marking)
△ MATH2022 - Groups and Vector Spaces	(16-17 : marking, 17-18 : tutoring and marking)
△ MATH2026 - Rings, Fields and Polynomials	(15-16 : marking)
△ MATH2051 - Geometry of Curves and Surfaces	(18-19 : tutoring and marking)
△ MATH2375 - Linear Differential Equations and Transforms	(17-18, 18-19 : tutoring and marking)

Volunteer Services

Reviewing activity for the database zbMATH	Sep. 20 - ongoing
Refereeing activity for the journals : <i>SIGMA, Letters in Mathematical Physics, Journal of Physics A, Communications in Mathematical Physics</i>	Sep. 19 - ongoing
Supervision of Level 4 (BSc) projects <i>2 students working on Poisson algebras and integrability</i> <i>3 students working on matrix Lie groups</i>	Sep. 19 - Mar. 20 – Glasgow, UK Sep. 20 - Mar. 21 – Glasgow, UK
Supervision of undergraduate summer project <i>1 student working on the Kontsevich-Rosenberg principle</i>	June-July 21 – Glasgow, UK
(Internal) Integrable Systems & Mathematical Physics Seminar <i>Organizer</i>	Sep. 19 - ongoing – Glasgow, UK
Integrable Systems Postgraduate Seminar <i>Organizer</i>	Sep. 16 - Apr. 19 – Leeds, UK
Postgraduate Algebraic Geometry Study Group <i>Co-organizer</i>	Feb. 16 - Aug. 18 – Leeds, UK
Teaching Enhancement Scheme <i>Member of the group "Supporting students into teaching"</i>	Oct. 17 - May 18 – Leeds, UK

Languages

French : *Native* **English :** *Fluent* **German :** *Basic*