

# Mihajlo Cekić

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CONTACT INFORMATION	Office K50 Institut für Mathematik, Uni. Zürich Wintherturerstrasse 190 CH-8057 Zürich, Switzerland	Phone: +41762279987 Email: <a href="mailto:mihajlo.cekic@math.uzh.ch">mihajlo.cekic@math.uzh.ch</a> Webpage: <a href="http://user.math.uzh.ch/cekic/">user.math.uzh.ch/cekic/</a> Google Scholar: <a href="#">ID link</a>
RESEARCH INTERESTS	Geometric inverse problems. Dynamical systems. Calderón inverse problem. X-ray transforms. Inverse spectral problems. Anosov flows. Pollicott-Ruelle resonances. Ruelle zeta functions. Eigenfunction concentration.	
EDUCATION	<b>University of Cambridge (Trinity College)</b>	
	<b>Ph.D., Mathematics</b> <span style="float: right;"><b>10.2014 - 9.2017</b></span> <ul style="list-style-type: none"><li>• Thesis title: “The Calderón problem for connections”</li><li>• Advisor: Gabriel P. Paternain</li></ul>	
	<b>Master of Mathematics</b> <span style="float: right;"><b>10.2013 - 6.2014</b></span> <ul style="list-style-type: none"><li>• Graduated with Distinction</li><li>• Wrote an essay “Statistical Properties of Geometric Flows and Equidistribution” supervised by V. Marković</li></ul>	
	<b>Bachelor of Arts in Mathematics</b> <span style="float: right;"><b>10.2010 - 6.2013</b></span> <ul style="list-style-type: none"><li>• Graduated with First Class Honours from all three years</li></ul>	
INTERNSHIP	<b>University of Cambridge</b> <span style="float: right;"><b>6.2013 - 8.2013</b></span> <i>Summer undergraduate research project</i> <ul style="list-style-type: none"><li>• Title: “<math>\Lambda^r</math> Khovanov homology of rational knots”</li><li>• Advisor: Jacob Rasmussen</li></ul>	
EMPLOYMENT	<b>University of Zurich</b> <span style="float: right;"><b>9.2021 - now</b></span> <i>Ambizione Fellow</i>	
	<b>CNRS, Université Paris-Saclay (Orsay)</b> <span style="float: right;"><b>9.2019 - 8.2021</b></span> <i>Postdoctoral researcher</i> <ul style="list-style-type: none"><li>• Advisor: Colin Guillarmou</li></ul>	
	<b>Max-Planck Institute for Mathematics, Bonn</b> <span style="float: right;"><b>10.2017 - 8.2019</b></span> <i>Postdoctoral fellowship</i> <ul style="list-style-type: none"><li>• Advisors: Herbert Koch and Werner Ballmann</li></ul>	
TEACHING EXPERIENCE	<b>University of Bonn</b> <span style="float: right;"><b>10.2018 - 6.2019</b></span> <ul style="list-style-type: none"><li>• Taught a Masters course on: “Introduction to Microlocal Analysis with applications” (Winter Semester 2018/19).</li><li>• Organised a seminar on the Steklov spectrum with A. Siffert (Summer Semester 2019).</li></ul>	
	<b>Trinity College, University of Cambridge</b> <span style="float: right;"><b>10.2014 - 6.2017</b></span> <i>Supervisor, Mathematical Tripos</i> Supervised the following subjects: <ul style="list-style-type: none"><li>• Part II: Differential Geometry (Lent 2015, Michaelmas 2016, Easter 2017), Riemann Surfaces (Easter 2016, Lent 2017), Linear Analysis (Easter 2016 and 2017)</li><li>• Part IB: Linear Algebra (Michaelmas 2015), Analysis II (Michaelmas 2014), Metric and Topological Spaces (Michaelmas 2014)</li><li>• Part IA: Analysis I (Lent 2015), Pure revision (Easter 2015).</li></ul>	
	<b>Petnica Science Centre, Serbia</b> <span style="float: right;"><b>10.2010 - now</b></span> <i>Senior Associate, Mathematics Seminar</i>	

Gave several lecture series to talented high school students; supervised and designed several summer projects for students.

**Mathematical Grammar School, Serbia**

**12.2012 - 12.2014**

*Teaching Assistant*

Gave several lecture series aimed at preparing high school students for mathematical competitions, based on undergraduate-level topics.

PEER REVIEW

International Mathematical Research Notices, Pure and Applied Analysis, SIAM Journal of Mathematical Analysis, Communications in Partial Differential Equations, Nonlinearity, Communications in Mathematical Physics

HONOURS /  
AWARDS

- Third prize for the Smith-Rayleigh and Knight-Rayleigh Prize essay, 1.2016  
under the title “The Calderón problem for connections”
- Trinity College Internal Graduate Scholarship (Ph.D. full funding) 10.2014 - 9.2017
- Senior Scholar, Trinity College 10.2013
- Trinity College Overseas Bursary (funding for undergraduate studies) 10.2010 - 6.2014
- Bridgewater summer research scholarship 6-8.2013
- International Mathematical Olympiad – two silver medals 7.2009, 7.2010
- Balkan Mathematical Olympiad – silver and bronze medal 5.2009, 5.2010
- Winner of competition Mathematical All-around in competition of 11.2009  
over 200 competitors, held in Kolmogorov High School, Moscow, Russia
- Junior Balkan Mathematical Olympiad – bronze medal 5.2006

PUBLICATIONS

1. M. Cekić, *Calderón problem for connections*, Comm. Partial Differential Equations **42** (2017), no. 11, 1781–1836.
2. M. Cekić, *Calderón problem for Yang-Mills connections*, J. Spectr. Theory **10** (2020), 463–513.
3. M. Cekić, Y.-H. Lin, A. Rüländ, *The Calderón problem for the fractional Schrödinger equation with drift*, Calc. Var. Partial Differential Equations **59** (2020), no. 3, Paper No. 91, 46 pp.
4. M. Cekić, B. Georgiev, M. Mukherjee, *Polyhedral billiards, eigenfunction concentration and almost periodic control*, Commun. Math. Phys. **377** (2020), 2451–2487.
5. M. Cekić, G.P. Paternain, *Resonant spaces for volume preserving Anosov flows*, Pure and Applied Analysis **2-4** (2020), 795–840.
6. M. Cekić, T. Lefeuvre, *Generic dynamical properties of connections on vector bundles*, International Mathematics Research Notices (2021), rnab069.
7. M. Cekić, C. Guillarmou, *First band of Ruelle resonances for contact Anosov flows in dimension 3*, Commun. Math. Phys. **386** (2021), no. 2, 1289–1318.
8. M. Cekić, S. Dyatlov, B. Delarue, G. P. Paternain, *The Ruelle zeta function at zero for nearly hyperbolic 3-manifolds*, to appear in Inventiones Mathematicae.

PREPRINTS

9. M. Cekić, *Harmonic determinants and unique continuation*, Unpublished Note (2018), [arXiv:1803.09182](https://arxiv.org/abs/1803.09182).
10. M. Cekić, T. Lefeuvre, *Holonomy Inverse Problem*, arXiv preprint (2021), [arXiv:2105.06376](https://arxiv.org/abs/2105.06376).
11. M. Cekić, T. Lefeuvre, *Generic injectivity of the X-ray transform*, arXiv preprint (2021), [arXiv:2107.05119](https://arxiv.org/abs/2107.05119).
12. M. Cekić, T. Lefeuvre, A. Moroianu, U. Semmelmann, *On the ergodicity of the frame flow on even-dimensional manifolds*, arXiv preprint (2021), [arXiv:2111.14811](https://arxiv.org/abs/2111.14811).
13. M. Cekić, C. Guillarmou, T. Lefeuvre, *Local Lens Rigidity for manifolds of Anosov type*, arXiv preprint (2022), [arXiv:2204.02476](https://arxiv.org/abs/2204.02476).
14. M. Cekić, T. Lefeuvre, A. Moroianu, U. Semmelmann, *Towards Brin’s conjecture on frame flow ergodicity: new progress and perspectives*, arXiv preprint (2022), [arXiv:2204.02476](https://arxiv.org/abs/2204.02476), Survey Article.

IN  
PREPARATION

15. M. Cekić, *Calderón problem for systems in product geometries via a complex ray transform*.
16. M. Cekić, T. Lefeuvre, *On transparent Anosov manifolds*.
17. M. Cekić, G.P. Paternain, *Resonant spaces for non-volume preserving Anosov flows*.

18. M. Cekić, A. Siffert, *Inverse magnetic Steklov problems on surfaces.*
19. M. Cekić, F. Torres de Lizaur, *On Anosov flows with zero helicity.*

UPCOMING	<ul style="list-style-type: none"> <li>• Workshop: Geometric Inverse Problems, Linz</li> </ul>	7-11 November, 2022
TALKS	<ul style="list-style-type: none"> <li>• Colloquium talk at Kuwait University</li> <li>• Geometric Inverse Problems and Dynamical Systems, Roscoff</li> <li>• Leeds Geometry Seminar</li> <li>• Geometric Analysis Seminar, Indian Institute of Technology, Bombay</li> <li>• Minisymposium on Inverse Problems (RSME), Ciudad Real</li> <li>• Seminar on PDEs and Mathematical Physics, Zurich</li> <li>• Ergodic Theory and Dynamical Systems Seminar, Zurich</li> <li>• Special Semester on Tomography Across the Scales: a Prequel, Linz</li> <li>• International Inverse Problems Seminar</li> <li>• Workshop: Ruelle-Pollicott Resonances in Dynamics and in Semi-classical Analysis, Lausanne (online)</li> <li>• Séminaire: Problèmes Spectraux en Physique Mathématique (online)</li> <li>• Paderborn geometric analysis seminar</li> <li>• Heidelberg Analysis Seminar</li> <li>• Advanced Topics in PDE seminar, Bonn</li> <li>• Séminaire ANH, Orsay</li> <li>• Seminar semiklassische Analysis und Darstellungstheorie, Köln</li> <li>• Oberseminar differentialgeometrie, MPIM, Bonn</li> <li>• MSRI seminar, Berkeley, USA</li> <li>• Workshop on Symplectic Topology, Belgrade, Serbia</li> <li>• Workshop: Probing the Earth and the Universe with Microlocal Analysis, Banff, Canada</li> <li>• Dynamics, geometry and interactions seminar, MPIM, Bonn</li> <li>• 10th Itinerant Workshop in PDE's, INdAM, Rome Sapienza</li> <li>• Symplectic Topology Seminar, Mathematical Faculty, Serbia</li> <li>• Second Annual Meeting, SANU, Serbia</li> <li>• Dynamics, geometry and interactions seminar, MPIM, Bonn</li> <li>• Conference: Inverse and Spectral Problems for (Non)-Local Operators, Leipzig, Germany</li> <li>• Summer school: Inverse problems and Unique continuation, Kopp</li> <li>• Workshop: Inverse problems, PDE and geometry, Jyväskylä, Finland</li> <li>• Oberseminar Differentialgeometrie, MPIM Bonn</li> <li>• Workshop: Analytic study of flows, Peyresq, France</li> <li>• Analysis and PDE seminar, UC Berkeley, USA</li> <li>• Geometry and analysis seminar, UC Santa Cruz, USA</li> <li>• Program for Inverse Problems, Imaging and PDEs, HKUST Institute for Advanced Study, Hong Kong</li> <li>• Geometric Analysis learning seminar: Ergodicity of the geodesic flow in negative curvature, MPIM, Bonn</li> <li>• MPI-Oberseminar, MPIM, Bonn</li> <li>• Graduate Seminar on Advanced Topics in PDE, University of Bonn</li> <li>• Conference: Mathematical Methods in Inverse Scattering and Spectral Theory, University of Leeds</li> <li>• Differential Geometry and Topology seminar, University of Cambridge</li> <li>• Conference: 100 Years of the Radon Transform, Linz</li> <li>• Inverse Problems seminar, University College London</li> <li>• LMS Workshop on Geometric Inverse Problems, Manchester (poster presentation)</li> <li>• Junior Geometry Seminar, University of Cambridge</li> <li>• Inverse Problems and Imaging seminar, University of Manchester</li> <li>• Junior Geometry Seminar, University of Cambridge</li> <li>• Mathematical Institute SANU, Serbia</li> <li>• Junior Geometry Seminar, University of Cambridge</li> <li>• Mathematical Institute SANU, Serbia</li> <li>• Mathematical Institute SANU, Serbia</li> </ul>	<p>6 April, 2022</p> <p>7-11 March, 2022</p> <p>2 February, 2022</p> <p>27 January, 2022</p> <p>17-21 January, 2022</p> <p>28 October, 2021</p> <p>22 November, 2021</p> <p>11 October, 2021</p> <p>23 September, 2021</p> <p>5 March, 2021</p> <p>1 February, 2021</p> <p>8 December, 2020</p> <p>19 November, 2020</p> <p>13 November, 2020</p> <p>20 January, 2020</p> <p>3 December, 2019</p> <p>21 November, 2019</p> <p>29 October, 2019</p> <p>20 August, 2019</p> <p>18 April, 2019</p> <p>2 April, 2019</p> <p>31 January, 2019</p> <p>28 December, 2018</p> <p>25 December, 2018</p> <p>6 November, 2018</p> <p>10 September, 2018</p> <p>4 September, 2018</p> <p>20 August, 2018</p> <p>28 June, 2018</p> <p>5 June, 2018</p> <p>19 March, 2018</p> <p>16 March, 2018</p> <p>29 November, 2017</p> <p>14, 21 November, 2017</p> <p>2 November, 2017</p> <p>20 October, 2017</p> <p>15 September, 2017</p> <p>10 May, 2017</p> <p>30 March, 2017</p> <p>24 March, 2017</p> <p>28 February, 2017</p> <p>27 January, 2017</p> <p>1 December, 2016</p> <p>March 2016</p> <p>September 2015</p> <p>March 2015</p> <p>December 2014</p> <p>December 2013</p>

VISITS /	• Microlocal Analysis Program, MSRI, USA	9-11.2019
CONFERENCES	• International Congress of Mathematicians, Rio de Janeiro	8.2018
ATTENDED	• Workshop on Groups, Geometry and Dynamics, Montevideo	7.2018
	• Visit to UC Berkeley analysis group	3.2018
	• Visiting Professor Uhlmann at the Program for Inverse Problems, Imaging and PDEs, Institute for Advanced Study, Hong Kong	12.2017
	• Summer School in Microlocal Analysis, Cardiff, UK	6.2017
	• Geometric Inverse Problems Semester, Paris, France	6.2015
	• Applied Inverse Problems, Helsinki, Finland	5.2015

OTHER Languages: Serbian (native), English (fluent), German, Russian (intermediate).  
 Technical Skills: C++, C#, LaTeX, Matlab.  
 Interests: sports (football, skiing, tennis, running), reading.