

Kürşat Sözer

CONTACT INFORMATION	Department of Mathematics and Statistics McMaster University Office: HH 414 Hamilton, Ontario Canada L8S 4E8	Email:sozerk@mcmaster.ca
WEBPAGE	https://math.mcmaster.ca/~sozerk/	
RESEARCH INTEREST	Quantum invariants of low-dimensional manifolds, topological field theories, homotopy field theories, cobordism hypothesis, homotopy self-equivalences of higher-dimensional manifolds, Hopf algebras, fusion and modular categories, and crossed modules	
EDUCATION	Indiana University Bloomington Ph.D. in Mathematics, August 2014 – May 2020 Advisor: Vladimir Turaev Middle East Technical University (Ankara) B.S. in Mathematics, September 2009 – June 2014 • Magna cum laude Minor in Physics, January 2010 – June 2014	
EMPLOYMENT	McMaster University, Postdoctoral Fellow École Polytechnique Fédérale de Lausanne, OCHoTop post-doc Université de Lille, OCHoTop post-doc	Sep 2022 - 2021 - 2022 2020 - 2021
PAPERS AND PREPRINTS	<ul style="list-style-type: none">▶ <i>The space of homotopy self-equivalences of a manifold: Homotopy groups</i> (with I. Hambleton and R. Sroka), in preparation.▶ <i>Crossed extensions of graded fusion categories</i> (with A. Virelizier), in preparation.▶ <i>3-dimensional cohomological HQFTs and twisted Yetter invariant</i> (with A. Virelizier), in preparation.▶ <i>Remarks on 2-dimensional extended HQFTs</i>, in preparation.▶ <i>3d-TQFTs and 3-manifold invariants</i> (with A. Virelizier), to appear in Encyclopedia of Mathematical Physics 2nd Edition, PDF File (11 pages).▶ <i>Hopf crossed module (co)algebras</i> (with A. Virelizier), submitted, arXiv:2305.15485 (31 pages).▶ <i>Monoidal categories graded by crossed modules and 3-dimensional HQFTs</i> (with A. Virelizier), Advances in Mathematics, 428 (2023) 109155 (94 pages).▶ <i>Two-dimensional extended homotopy field theories</i>, Algebraic & Geometric Topology, 23:9 (2023) 3909–3996 (88 pages).	

SEMINAR TALKS: RESEARCH	Middle East Technical University Topology Seminar	Jan 2, 2024
	Middle East Technical University General Seminar	Dec 28, 2023
	Ohio State University Quantum Symmetry Seminar	Apr 13, 2023
	McMaster University Topology Seminar	Sep 15, 2022
	OCHoTop Online Seminar	Feb 19, 2021
	UCGEN Online Seminar	Jan 20, 2021
	EPFL Topology Seminar	Nov 3, 2020
	University of Southern California Geometry, Topology, and Cate- gorification Seminar	Feb 3, 2020
	University of Lille Topology Seminar	Jan 30, 2019
	Michigan State University Topology Seminar	Oct 1, 2018
Indiana University Bloomington Topology Seminar	May 25, 2018	
CONFERENCE (MEETINGS) TALKS	Moduli and Friends (virtual talk)	May 27, 2024
	Quantum Symmetries at the CRM (Contributed talk)	Oct 12, 2022
	Quantum Topology and Geometry conf. in honor of V. Turaev	June 17, 2022
	QuaSy-Con at Univ. of Illinois Urbana-Champaign (Contrib. talk)	Nov 9, 2019
	AMS Sectional Meeting at Binghamton University (Contrib. talk)	Oct 12, 2019
	Young Topologist Meeting at EPFL (Contributed talk)	July 23, 2019
	GSTGC at Univ. of Illinois Urbana-Champaign (Contrib. talk)	Mar 31, 2019
	Aspects of Higher Repres. Theory at Brussels (Contrib. talk)	Jan 22, 2019
Higher Str. in Holomorphic and Topological Field Theory at IHES (Contrib. talk)	Jan 16, 2019	
TEACHING	<u>At McMaster University</u>	
	MATH-1B03 Linear Algebra I (Lecturing)	Fall 2024
	MATH-1B03 Linear Algebra I (Lecturing)	Spring 2024
	MATH-3T03 Inquiry in Topology (Lecturing)	Fall 2023
	MATH-2ZZ3 Engineering Mathematics 4 (Lecturing)	Winter 2023
	MATH-3T03 Inquiry in Topology (Lecturing)	Fall 2022
	<u>At EPFL</u>	
	MATH-110(a) Advanced Linear Algebra I (Assisting)	Fall 2021
	Participated in Teaching Toolkits for Exercises 1-2 seminars	Sept 2021
	Presented Polya's problem-solving method to assistants	Sept 2021
	<u>At Indiana University Bloomington</u>	
	M435-Introduction to Differential Geometry (Grading)	Spring 2020
	M303-Linear algebra and M311-Calculus 3 help sessions (Assisting)	Spring 2020
	M27-Precalculus with Trigonometry (Lecturing)	Fall 2019
	M25-Precalculus (Lecturing)	Spring 2016
	M311-Calculus 3 (Recitation)	Fall 2016
	T336-Topics in Euclidean Geometry (Grading)	Fall 2016
	M521-Topology (Grading)	Fall 2016
	M311-Calculus 3 (Recitation)	Fall 2015
	M321-Intuitive Topology (Grading)	Fall 2015
T336-Topics in Euclidean Geometry (Grading)	Fall 2015	
M413-Introduction to Analysis (Grading)	Fall 2014	

MENTORING	Directed Reading Program in Türkiye for undergraduates in and around Türkiye on Hausdorff Topological Spaces	Summer 2023	
	Mentoring Donghan Wang for his master's thesis at EPFL	Spring 2022	
	Directed Reading Program for undergraduates at IU Bloomington on Knots and 3-manifolds	Spring 2019	
	Directed Reading Program for undergraduates at IU Bloomington on Differential Forms and de Rham Cohomology	Spring 2017	
ORGANIZATION	Geometry and Topology seminar at McMaster University	Fall 2023	
	Reading Seminar at McMaster on Cobordism Thy (with R. Sroka)	Winter 2023	
	Local seminar at EPFL among the topology group	Spring 2022	
	Graduate Student Topology and Geometry Conference 2020 at IU Bloomington (Leading co-organizer); postponed due to COVID-19	April 2020	
	IU Grad. Student Knot Theory and TQFT Seminar (Co-organizer)	Spring 2017	
	Grad. Student Topology-Geometry Confer. at IU (Co-organizer)	2016	
HONOURS AND AWARDS	Outstanding Thesis Award (one of the three awardees)	2020	
	AMS Graduate Student Travel Award	2019	
	Hazel King Thompson Summer Reading Fellowship	2017, 2019	
	Indiana University Graduate Fellowship	2015	
	Fulbright Fellowship Awardee	2013	
	Middle East Technical University High Honor List	2010-2014	
GRADUATE COURSEWORK	<input type="checkbox"/> Complex Variables 1-2	<input type="checkbox"/> Theory of Gravitation	
	<input type="checkbox"/> Metric Geometry	<input type="checkbox"/> Symplectic Geometry and 4-manifolds	
	<input type="checkbox"/> Commutative Algebra	<input type="checkbox"/> Rational Billiards and Teichmüller Dynamics (nonregistered)	
	<input type="checkbox"/> Algebraic Topology 1-2	<input type="checkbox"/> Surface homeomorphisms; topology, geometry, analysis (nonregistered)	
	<input type="checkbox"/> Lie Algebras & Lie Groups 1-2	<input type="checkbox"/> Calculus of Functors (nonregistered)	
	<input type="checkbox"/> Geometric Topology 1-2	<input type="checkbox"/> Representation varieties of 2- and 3-manifold groups (nonregistered)	
	<input type="checkbox"/> Homotopy Type Theory	<input type="checkbox"/> Derived categories (nonregistered)	
	<input type="checkbox"/> Group Representations		
	<input type="checkbox"/> Quantum Topology		
	<input type="checkbox"/> Etale Cohomology		
	<input type="checkbox"/> Reidemeister Torsion		
	LANGUAGES	Turkish (Native), English (Fluent), French (Intermediate)	
	CITIZENSHIP	Turkey	