

CONTACT INFORMATION	Izmir Institute of Technology Department of Mathematics Glbahe Campus, Izmir 35430 Turkey	E-posta: <a href="mailto:neslihangugumcu@iyte.edu.tr">neslihangugumcu@iyte.edu.tr</a> Website: <a href="http://www.nesligugumcu.weebly.com">www.nesligugumcu.weebly.com</a> Phone:(+90)232 750 77 80
RESEARCH INTERESTS	Low-dimensional topology, knot theory and its generalizations, theory of knotoids, quantum topology, combinatorics, applications of knot theory in biology, physics and chemistry	
EDUCATION	<b>National Technical University of Athens</b> Ph.D. in Mathematics	December 2013 – February 2018
	<ul style="list-style-type: none"> <li>• Dissertation: <i>On Knotoids, Braidoids and Their Applications</i></li> <li>• Supervisor: Sofia Lambropoulou</li> <li>• Committee: L.H.Kauffman, V.Turaev, S.Nelson, D.Kodokostas, O.Pashaev, P.Bellingeri</li> </ul>	
	<b>Middle East Technical University</b> M.S. in Mathematics with High Honors B.S. in Mathematics with Honors	January 2008 – June 2010 September 2003 – January 2008
ACADEMIC POSITIONS	<b>Assistant Professor,</b> Izmir Institute of Technology Department of Mathematics	October 2019–Present
	<b>Dorothea Schlzer Postdoctoral Fellow,</b> Georg-August-Universitat Gttingen	January 2020–October 2020
	<b>Leibniz Fellow,</b> Oberwolfach Research Institute for Mathematics	August 2019–October 2019
	<b>Instructor for foreign students,</b> Ege University	March 2019 – May 2019
	<b>Part-time Instructor,</b> Izmir University of Economics, Department of Mathematics	Jun 2018 – February 2019
	<b>Research Fellow,</b> Thales Project, National Technical University of Athens	2014 – 2017
	<b>Teaching Assistant,</b> Ko University, Department of Mathematics	2010 – 2013
	<b>Research and Teaching Assistant,</b> Bakent University, Department of Education of Mathematics	2008 – 2010
	<b>Undergraduate Teaching Assistant,</b> Middle East Technical University, Department of Mathematics	2007 – 2008
RESEARCH FELLOWSHIPS & AWARDS	<p><b>2019-2021</b> Dorothea Schlzer Postdoctoral Fellowship for Female Scientists</p> <p><b>2019</b> Oberwolfach Leibniz Fellows Program by Oberwolfach Research Institute for Mathematics</p> <p><b>2018</b> Simons Foundation (USA) Travel Grant to visit Prof. Sam Nelson</p> <p><b>2017</b> Simons Foundation (USA) Travel Grant and Funding by University of Illinois to visit Prof.</p>	

Louis Kauffman

**2017** European Mathematical Society Travel Fund for AMS Meeting in Washington

**2017** Claremont Topology Seminar Fund for visiting Claremont McKenna College

**2014 – 2017** Ph.D. Grant by THALES Program of the Greek Ministry of Education and E.U.,  
Scientific Coordinator: Prof. Sofia Lambropoulou

**2016** European Mathematical Society Travel Fund for Knots in Hellas Conference

**2009 – 2012** Scientific and Tecnological Research Council of Turkey Travel Grant for  
Gökova Geometry & Topology Conferences

**2004 – 2007** Middle East Technical University Development Foundation Scholarship for Under-  
graduate Students

## PUBLICATIONS

### 1. **New invariants of knotoids**

*With L. H. Kauffman,*

*European Journal of Combinatorics 65C, 2017, pp. 186-229*

*ArXiv preprint: <https://arxiv.org/abs/1602.03579>*

### 2. **On the height of knotoids**

*With L. H. Kauffman,*

*Springer Proceedings in Mathematics & Statistics (PROMS) Book Title: Algebraic Modeling  
of Topological and Computational Structures and Applications, 219, 2017; S.Lambropoulou et  
al., Eds.*

### 3. **Topological models for knotted bonded open protein chains using the concept of knotoids and bonded knotoids**

*With D. Goundaroulis, S. Lambropoulou, J. Dorier, A. Stasiak and L. H. Kauffman,*

*Polymers 9(9), 2017*

*Publication link: <https://www.mdpi.com/2073-4360/9/9/444>*

### 4. **Knotoids, braidoids and applications**

*With S. Lambropoulou,*

*Symmetry, 9(12), 315, 2017, Special Issue: Knot Theory and Its Applications*

*Publication link: <https://www.mdpi.com/2073-8994/9/12/315>*

### 5. **Biquandle coloring invariants of knotoids**

*With S. Nelson,*

*Journal of Knot Theory and Its Ramifications, Vol:28(4)*

*<https://doi.org/10.1142/S0218216519500299>*

*ArXiv preprint: <https://arxiv.org/abs/1803.11308>*

### 6. **A survey on knotoids, braidoids and their applications**

*With L. Kauffman and S. Lambropoulou, Proceedings of the Conference Knots, Low-dimensional  
Topology and Applications-Knots in Hellas 2016, Springer Proceedings in Mathematics &  
Statistics (PROMS); C. Adams et al., Eds.*

*ArXiv preprint: <https://arxiv.org/abs/1811.11648>*

### 7. **What is a braidoid?**

*to appear in the refereed book ‘A Concise Encyclopedia of Knots’, Taylor & Francis Press,*

*Editors: Colin Adams, Erica Flapan, Louis Kauffman, Sam Nelson, Allison Henrich, Lew Ludwig, expected publication date: 2019*

SUBMITTED  
MANUSCRIPTS

**1. Parity in knotoids**

*With L. Kauffman, ArXiv preprint: <https://arxiv.org/abs/1905.04089>, 2019*

**2. Braidoids**

*With S. Lambropoulou, 2018*

**3. Biquandle brackets and knotoids**

*With S.Nelson and N.Oyamaguchi*

ACADEMIC  
VISITS

<b>August 2019</b>	Oberwolfach Research Institute for Mathematics	Oberwolfach, Germany
<b>March 2018</b>	Claremont McKenna College	Claremont, USA
	Host: Prof. Sam Nelson	
<b>July 2017</b>	Oberwolfach Research Institute for Mathematics	Oberwolfach, Germany
	'Research in pairs' program, with L. H. Kauffman ve S. Lambropoulou (participation via Skype)	
<b>April 2017</b>	University of Illinois at Chicago	Chicago, USA
	Host: Prof. Louis H. Kauffman	
<b>April 2017</b>	Claremont McKenna College	Pomona, USA
	Host: Prof. Sam Nelson	
<b>April 2015</b>	University of Illinois at Chicago	Chicago, USA
	Host: Prof. Louis H. Kauffman	

SELECTED  
PRESENTATIONS

<b>2019:</b>		
<b>MAR</b>		
	Izmir Institute of Technology Department of Mathematics Seminar	Izmir, Turkey
	9 Eylul University Departmental Arithmetic Seminar	Izmir, Turkey
	Istanbul Center for Mathematical Sciences	Istanbul, Turkey
	Bogazici University Department of Mathematics Colloquium	Istanbul, Turkey
<b>2018:</b>		
<b>OCT 9</b>	Eylul University Department of Mathematics Algebra Seminar	Izmir, Turkey
<b>APR</b>	AMS Spring Western Sectional Meeting	Portland, USA
<b>MAR</b>		
	Claremont College Topology Seminar	Claremont, USA
	Cal State Fullerton Geometry and Topology Seminar	Fullerton, USA
	Izmir University of Economics Dept. of Mathematics Seminar	Izmir, Turkey
<b>2017:</b>		
<b>SEP</b>	Izmir Institute of Technology Department of Mathematics Seminar	Izmir, Turkey
<b>APR</b>		
	UIC Quantum Topology and Hopf Algebra Seminar	Chicago, USA
	AMS Sectional Meeting	
	Combinatorial and Algebraic Structures Conference	Washington, USA
	USC Geometry and Topology Seminar	Los Angeles, USA

Claremont College Topology Seminar	Claremont, USA
<b>FEB</b> Winter Braids '7 Poster Presentation, Université de Caen 1	Caen, France
<b>2016:</b>	
<b>JUL</b> Knots in Hellas'16, International Olympic Academy	Olympia, Greece
<b>FEB</b> Winter Braids'6, Poster Presentation, Université de Lille 1	Lille, France
<b>2015:</b>	
<b>JUN</b> Thalys Project Workshop Poster Presentation, NTUA	Athens, Greece
<b>APR</b> UIC Quantum Topology and Hopf Algebra Seminar	Chicago, USA
<b>2014:</b>	
<b>JUL</b> Young Topologists Meeting '14, University of Copenhagen	Copenhagen, Denmark
<b>APR</b> Thessaloniki Algebra Days, Aristotle University of Thessaloniki	Thessaloniki, Greece
<b>FEB</b> NTUA Low Dimensional Topology Seminar	Athens, Greece

TEACHING  
EXPERIENCE

<b>Ege University</b>	
Precalculus	Spring'19
<b>Izmir University of Economics</b>	
Calculus II	Summer'18
Introduction to Mathematics and Statistics	Fall'18
<b>National Technical University of Athens</b>	
Teaching Assistant for	
Knot Theory & Its Applications in Biology, Physics, Chemistry	Spring'14, '16
<b>Koç University</b>	
Teaching Assistant for	
Calculus I-II	10/2012 - 06/2013
Statistics - Calculus I	10/2011 - 06/2012
Calculus I - Statistics	10/2010 - 06/2011
<b>Başkent University</b>	
Teaching Assistant for	
Abstract Mathematics-General Topology	10/2008 - 06/2009
Advanced Calculus- Calculus I, Calculus II	10/2009 - 06/2010
<b>Middle East Technical University</b>	
Undergraduate Teaching Assistant for	
Linear Algebra	10/2007 - 06/2008

MEMBERSHIPS &  
SERVICE

Association for Women in Mathematics, USA	
Invited Reviewer/Referee for zbMath, Journal of Knot Theory and Its Ramifications, Mediterranean Journal of Mathematics	

LANGUAGES

Turkish (Native), English (Advanced), Greek (Intermediate)

REFERENCES

**Prof. Sofia Lambropoulou**

National Technical University of Athens

sofia[at]math.ntua.edu

**Emeritus Prof. Louis H. Kauffman**

University of Illinois at Chicago

kauffman[at]uic.edu

**Prof. Vladimir Turaev**

Indiana University at Bloomington

vtourae[at]indiana.edu

**Prof. Sam Nelson**

Claremont McKenna College

Sam.Nelson[at]claremontmckenna.edu

**Ass.Prof. Dimitrios Kodokostas**

National Technical University of Athens

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**Emeritus Prof. Timur Karaçay**

Başkent University

tkaracay[at]baskent.edu.tr