



Prof. Deniz KARLI

Department of Mathematics

Işık University

Şile, Istanbul, Turkey

Office Phone: (216) 528-7190 Cell Phone: ...

deniz.karli@isikun.edu.tr , deniz.karli@gmail.com

Personal Web Page: <http://www.denizkarli.com>

Education

Post-Doc in Mathematics, University of British Columbia (Vancouver / Canada)	<i>2012</i>
Ph.D. in Mathematics, University of Connecticut (CT / United States),	<i>2010</i>
Master of Science in Mathematics, Boğaziçi University (Istanbul / Turkey),	<i>2005</i>
Bachelor of Science in Mathematics, Boğaziçi University (Istanbul / Turkey),	<i>2002</i>

Work Experience

Professor, Department of Mathematics, Işık University,	Istanbul, Turkey, <i>2023-Present</i>
Associate Professor, Department of Mathematics, Işık University,	Istanbul, Turkey, <i>2019-2023</i>
Instructor, Tebip (Temel Bilimler Üstün Başarı Programı/ Honors Programs in Natural Sciences), YÖK - CoHE - Council of Higher Education,	Istanbul, Turkey, <i>2019-Present</i>
Assistant Professor, Department of Mathematics, Işık University,	Istanbul, Turkey, <i>2012-2019</i>
Post-Doc Fellow/Researcher, Department of Mathematics, The University of British Columbia,	Vancouver, BC, Canada, <i>2010-2012</i>
Instructor, Department of Mathematics, The University of British Columbia,	Vancouver, BC, Canada, <i>2010-2012</i>
Instructor, Department of Mathematics, University of Connecticut,	

Storrs, CT, United States, *2005-2010*

Instructor, Center for Academic Programs (CAP), University of Connecticut,
Storrs, CT, United States, *2005-2010*

Instructor, Summer Programs, Bogazici University,
Istanbul, Turkey, *Summer 2010*

Teaching Assistant, Department of Mathematics, Bogazici University,
Istanbul, Turkey, *2002-2005*

Research Interests

Probability Theory, Harmonic Analysis, Potential Analysis, Stochastic Processes, the interface between Probability Theory and Analysis, Applications of Stochastic Processes in Engineering.

Research Experience

Publications

[8.] *[APPLIED MATH]* Optimization of wastewater treatment systems for growing industrial parks, *Science of The Total Environment*, Volume 905, Issue 20, (2023). (joint with Başak Savun-Hekimoğlu, Zülal İşler, Mustafa Hekimoğlu, Selmin Burak, Ahmet Yücekaya, Ersin Akpınar, Volkan Ş. Ediger),

Journal Edition: <https://www.sciencedirect.com/science/article/pii/S0048969723058503>
(DOI: 10.1016/j.scitotenv.2023.167223)

[8.] *[APPLIED MATH]* Modeling repair demand in existence of a nonstationary installed base, *International Journal of Production Economics*, Volume 263 (2023). (joint with Mustafa Hekimoğlu),
Journal Edition: <https://www.sciencedirect.com/science/article/pii/S092552732300155X>

(DOI: 10.1016/j.ijpe.2023.108923)

[6.] *[MATH]* Some remarks on uniform boundary Harnack principles, *Potential analysis*, Volume 57, Issue 3, (2022), pp 433-446. (joint with Martin T. Barlow, University of British Columbia),

Journal Edition: <https://link.springer.com/epdf/10.1007/s11118-021-09922-3>
(DOI: 0.1007/s11118-021-09922-3); arXiv:1507.04115

[5.] *[APPLIED MATH]* Adaptive convolution kernel for artificial neural networks, *Journal of Visual Communication and Image Representation*, (joint with Martin T. Barlow, University of British Columbia), Volume 75, Issue 2, (2021), Article Number 103015.

(DOI: 10.1016/j.jvcir.2020.103015); arXiv:2009.06385

[4.] *[MATH]* Extension of Mikhlin Multiplier Theorem to Fractional Derivatives and Stable Processes, *Fractional Calculus and Applied Analysis*, Volume 21, Issue 2, (2018), Pages 486-508.

(DOI: 10.1515/fca-2018-0027); arXiv: 1806.09975

[3.] *[MATH]* A Multiplier Related to Symmetric Stable Processes, *Hacettepe Journal of Mathematics and Statistics*, Volume 46(2) (2017), pp 217-228.

(DOI: 10.15672/HJMS.20164517212); arXiv:1507.04115

[2.] *[MATH]* An Extension of a Boundedness Result for Singular Integral Operators, Colloquium Mathematicum, Volume 145, Issue 1, (2016), pp 15-33.

(DOI: 10.4064/cm6722-1-2016); arXiv:1501.05164

[1.] *[MATH]* Harnack Inequality and Regularity for a Product of Symmetric Stable Process and Brownian Motion, Potential Analysis: Volume 38, Issue 1 (2013), pp 95-117.

(DOI: 10.1007/s11118-011-9265-6); arXiv:1010.4904

Research Projects

[5.] (*Completed Successfully*) Development of Mathematical Models for the Optimum Utilization of 3D Printers in Spare Parts Inventory Management In Existence of Supply Chain Risks, Prj. Nr. 219M243, Funded by TUBITAK, 36 Months, (Researcher).

Category of the Project: ARDEB 1001

Duration of the Project: 2020-2023

[4.] (*Completed Successfully*) Stable Stochastic Processes, Fractional Calculus and Their Effects in Economic Order Quantity (EOQ) Model, Scientific Research Projects (SRP) (also known as BAP), Project Nr. 20A101, Funded by Işık University, 24 Months (Principle Investigator).

Category of the Project: BAP

Duration of the Project: 2020-2022

[3.] (*Completed Successfully*) The focusing neuron model and a new method to learn network connection topology in artificial neural networks, Prj. Nr. 118E722, Funded by TUBITAK, 30 Months, (Researcher).

Category of the Project: ARDEB 1001

Duration of the Project: 2019-2021

[2.] (*Completed Successfully*) Optimum Spare Parts Inventory Control With Installed Base Information In Existence of Secondary Markets, Prj. Nr. 118M477, Funded by TUBITAK, 20 Months, (Researcher).

Category of the Project: ARDEB 3501

Duration of the Project: 2018-2020

[1.] (*Completed Successfully*) Study of Bounded Integral Operators by Means of Littlewood-Paley Operators: A Probabilistic Approach, Scientific Research Projects (SRP) (also known as BAP), Project Nr. 14B103, Funded by Işık University, 24 Months (Principle Investigator).

Category of the Project: BAP

Duration of the Project: 2014-2016

PhD Thesis

Littlewood-Paley Functions from a Probabilistic Point of View

University of Connecticut

Advisor : Prof. Richard F. Bass (University of Connecticut)

Storrs, CT, United States, *2010*

Master Thesis

The group algebra $L^1(G)$ of a compact abelian group G

Boğaziçi University

Advisor : Prof. Ali Ülger (Koç University)

Co-Advisor: Prof. Betül Tanbay (Boğaziçi University)

Istanbul, Turkey, *2005*

Honors and Awards

Excellence in Teaching Award, University of British Columbia,

Vancouver, BC, Canada, *Spring 2012*

Doctoral Dissertation Fellowship Award, University of Connecticut,

Storrs, CT, United States, *Spring 2010*

Department of Mathematics Graduate Fellowship, University of Connecticut,

Storrs, CT, United States, *Spring 2010*

Department of Mathematics Graduate Fellowship, University of Connecticut,

Storrs, CT, United States, *Fall 2009*

Dissertator Travel Award, University of Connecticut,

Storrs, CT, United States, *Spring 2009*

Letter of Appreciation of Excellence in Teaching, University of Connecticut,

Storrs, CT, United States, *Fall 2006 & Fall 2008*

Selected Invited Talks

Probabilistic Analysis For Singular Integral Operators and Fractional Derivatives, Bilkent University,

Ankara, Turkey *April 2021*

Singular Integral Operators by means of Stable Processes and their Connection to Fractional Derivatives, American Mathematical Society Sectional Meeting,

Orlando, FL, United States, *September 2017*

Singular Integral Operators by means of Stable Processes and their Connection to Fractional Derivatives, Boğaziçi University,

Istanbul, Turkey, *December 2017*

Boundedness of Singular Integral Operator by Probabilistic Methods, The 3rd Ankara-Istanbul Workshop on Stochastic Processes, Middle East Technical University,
Ankara, Turkey, *April 2016*

Singular Integral Operators by Means of Stable Processes, Gebze Technical University,
Istanbul, Turkey, *April 2015*

Stable Processes and Lp-operators, Galatasaray University,
Istanbul, Turkey, *October 2014*

Probabilistic Approach to Analysis of Lp-operators, The 1st Ankara-Istanbul Workshop on Stochastic Processes,
Istanbul, Turkey, *June 2014*

Probabilistic Approach to Analysis of Lp-operators, Koç University,
Istanbul, Turkey, *April 2014*

Probabilistic Approach to Analysis of Lp-operators, Istanbul Analysis Seminars,
Istanbul, Turkey, *February 2014*

The Harnack Inequality and Littlewood-Paley Functions for Symmetric Stable Processes, SIAM Conference on Analysis of Partial Differential Equations,
San Diego, CA, United States, *November 2011*

Littlewood-Paley Theory and Multiplier Problem from a Probabilistic Approach, Cornell University,
Ithaca, NY, United States, *February 2011*

Multiplier Problem and Probabilistic Littlewood-Paley Functions, The University of British Columbia,
Vancouver, Canada, *September 2010*

Some Other Talks Given

Symmetric Stable Processes and corresponding Littlewood-Paley Functions, SSP 2010, University of Central Florida,
Orlando, FL, United States, *2010*

Littlewood-Paley Functions from a Probabilistic point of view, University of Connecticut,
Storrs, CT, United States, *2009*

Littlewood-Paley Functions from a Probabilistic point of view, Boğaziçi University,
Istanbul, Turkey, *2009*

Closed ideals of Compact Abelian Groups, Boğaziçi University,
Istanbul, Turkey, *2005*

Refreed for Journals

The Electronic Journal of Probability
Stochastics: An International Journal Of Probability And Stochastic Processes
Journal of Applied Mathematics
TWMS Journal of Applied and Engineering Mathematics

AMS Mathematical Reviews

Some Workshops and Conferences Attended

American Mathematical Society Sectional Meeting, University of Central Florida,
Orlando, FL, United States, *2017*

The 2nd Ankara-Istanbul Workshop on Stochastic Processes, Middleeast Technichal University,
Ankara, Turkey, *2016*

The 1st Ankara-Istanbul Workshop on Stochastic Processes, Koç University,
Istanbul, Turkey, *2014*

North West Probability Seminar, University of British Columbia,
Vancouver, BC, Canada, *2013*

PIMS-Mprime Summer School in Probability, University of British Columbia,
Vancouver, BC, Canada, *2012*

North West Probability Seminar, University of Washington,
WA, United States, *2011*

9th North East Probability Seminar, Columbia University,
New York, United States, *2010*

North West Probability Seminar, Microsoft research,
WA, United States, *2010*

8th North East Probability Seminar, Columbia University,
New York, United States, *2009*

AMS Eastern Sectional Meeting, University of Connecticut,
Connecticut, United States, *Fall 2006*

Workshop and Seminars on Functional Analysis, Boğaziçi University ,
Istanbul, Turkey, *2004*

International Abstract Harmonic Analysis Conference, Koç University,
Istanbul, Turkey, *2004*

Member of

SIAM, AMS, TMD

Work Experience

Assistant Professor, Department of Mathematics, Işık University,
Istanbul, Turkey, *2012-Present*

Post-Doc Fellow/Researcher, Department of Mathematics, The University of British Columbia,
Vancouver, BC, Canada, *2010-2012*

Instructor, Department of Mathematics, The University of British Columbia,
Vancouver, BC, Canada, *2010-2012*

Instructor, Department of Mathematics, University of Connecticut,
Storrs, CT, United States, *2005-2010*

Instructor, Center for Academic Programs (CAP), University of Connecticut,
Storrs, CT, United States, *2005-2010*

Instructor, Summer Programs, Bogazici University,

Istanbul, Turkey, *Summer 2010*

Teaching Assistant, Department of Mathematics, Bogazici University,

Istanbul, Turkey, *2002-2005*

Teaching Experience

Tebip (Temel Bilimler Üstün Başarı Programı/ Honors Programs in Natural Sciences), YÖK - CoHE - Council of Higher Education, Istanbul, Turkey, *2019-Present*

Işık University - Istanbul, Turkey, *2012-Present*

The University of British Columbia - Vancouver, BC, Canada, *2010-2012*

University of Connecticut - Storrs, CT, United States, *2005-2010*

Boğaziçi University - Istanbul, Turkey, *2002-2005 & Summer 2010*

Teaching Awards

Exelence in Teaching Award, The University of British Columbia

Vancouver, BC, Canada, *2012*

Letter of Appreciation of Excellence in Teaching, University of Connecticut

Storrs, CT, United States *2006 & 2008*

Teaching Certificates

Instructor Skill Workshop, The University of British Columbia

Vancouver, BC, Canada, *2010*

The Institute for Teaching and Learning Workshop, University of Connecticut

Storrs, CT, United States *2005*

Courses Taught:

Işık University

Fall 2012 to Present

Instructor & Coordinator- Coordination of several part-time and full-time faculties, preparation and presentation of lectures.

Calculus for Engineers I & II, Calculus for Business I & II,
Probability, Functional Analysis, Introduction to Real Analysis,
Undergraduate Thesis, Numbers, Formulas and Human
Graduate Probability, Probability and Stochastic Processes

The University of British Columbia

Fall 2010 to 2012

Instructor - Preparation and presentation of lectures.

Ordinary Differential Equations, Calculus for Engineers, Calculus for Business

Boğaziçi University

Summer 2010

Instructor - Preparation and presentation of lectures.

Probability Theory

University of Connecticut

Fall 2005 to 2010

Instructor - Preparation and presentation of lectures.

Applied Finite Mathematics I & II , Introduction to Calculus I & II ,
Elementary Discrete Mathematics , Calculus I & II, Multivariable Calculus

University of Connecticut Center for Academic Programs,

Summer 2006, 2007, 2008

Instructor - Preparation and presentation of lectures.

Introduction to Calculus I, PreCalculus , Applied Finite Mathematics

Boğaziçi University

Fall 2002 to Spring 2005

Preparation and presentation of discussion/problem/review sessions, grading papers and quizzes,
some guest lecturing

Calculus I & II , Complex Analysis , Real Analysis , Applied Finite Mathematics
Functional Analysis , Numerical Analysis

Skills

Languages

Turkish (Native),
English (Fluent),
German

Computer Languages

C, C++, Pascal, Cgi, Perl, Swift

Computer applications experience

Mathematica, Maple, Quilt

Extra Activities

Mathematics seminars for highschool students;

FMW Işık Lisesi - Güneş Campus: Weekly seminars on interesting mathematical topics for highschool students for 2 semesters

2014-2015

Organizer of Undergraduate Math Seminars

Organized the seminars, and given several talks on interesting topics in Mathematics

2013-2015

Advisors of Student clubs:

Mathematics Club, Photography Club, Quiditch Club

2013-2016

Organizer of "Hazine Avı";

An outdoor Mathematics game for undergraduate university students

2013-2015

The Head of Turkish Student Association at University of Connecticut,

Representing the Turkish Community of the University of Connecticut and hosting events on Turkish culture

2006-2009

Citizenship

Turkey