

# Assoc. Prof. Fatih DEMİRKALE

## Personal Information

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## Biography

Assoc. Prof. Fatih Demirkale; graduated from Boğaziçi University Mathematics Department in 2007, Boğaziçi University Mathematics Department Graduate Program in 2009 and University of Queensland, Australia, Combinatorial Mathematics PhD Program in 2013. He was appointed as Assistant Professor in 2014 and has been appointed as Associate Professor since 2016. He worked in different academic positions at Boğaziçi University, Koç University, Queensland University and Yıldız Technical University.

He has 10 articles published in SCI / SCI-E indexed journals and 1 articles published in other journals and he has 18 oral presentations.

He is principal investigator of projects within TÜBİTAK 1001 - Scientific and Technological Research Projects Funding Program, TÜBİTAK 2244 - Tusaş and Yıldız Technical University Industrial Program and TÜBİTAK 1512 Entrepreneurship Multi-phase Programme. Also, he participated in 2 international and 2 TÜBİTAK research projects. In addition, he worked as a coordinator in 2 BAP projects.

He served as an advisor to 3 MSc and 1 PhD students. He is currently advisor of 3 PhD students. He has served as a scientific referee in various academic journals. He gave talks at more than 10 international conferences. He was a member of organizing committee for 3 conferences held in Turkey with foreign participations.

He has taught many courses at the University of Queensland, Koç University and National Defense University at undergraduate level and at Yıldız Technical University at undergraduate and graduate levels.

He received the International Research Tuition Award and the Research Scholarship from the University of Queensland in 2009 and the School of Mathematics and Physics Award of Research Scholar in 2012.

Assoc. Prof. Fatih Demirkale was born in 1984 in Rize and he is married.

## Education Information

2009 - 2013	Doctorate, University of Queensland, Faculty of Science, School of Mathematics and Physics, Australia
2007 - 2009	Postgraduate, Bogazici University, Fen Bilimleri Enstitüsü, Matematik Bölümü, Turkey
2002 - 2007	Undergraduate, Bogazici University, Fen Edebiyat Fakultesi, Matematik Bölümü, Turkey

## Foreign Languages

English, C2 Mastery

## Dissertations

2013	Orthogonal Arrays; Enumeration and Applications, University of Queensland, Faculty of Science, School of Mathematics and Physics, Doctorate
2009	On Minimal Defining Sets Of Full Designs, Boğaziçi Üniversitesi, Fen Bilimleri Enstitüsü, Matematik Bölümü, Postgraduate

## Research Areas

Computer Sciences, algorithms, Mathematics, Combinatorics, Natural Sciences, Engineering and Technology

## Academic Titles / Tasks

2016 - Continues	Associate Professor, Yıldız Technical University, Faculty Of Arts & Science, Department Of Mathemeatics
2018 - 2019	Associate Professor, National Defense University, Naval Academy, Department Of Basic Courses
2014 - 2016	Assistant Professor, Yıldız Technical University, Faculty Of Arts & Science, Department Of Mathemeatics
2014 - 2014	Lecturer PhD, Koc University, Faculty Of Science, Department Of Mathematics
2013 - 2014	Research Assistant PhD, Koc University, Faculty Of Science, Department Of Mathematics
2009 - 2013	Research Assistant, University Of Queensland, Faculty Of Science, Mathematics Department
2012 - 2012	Lecturer, University Of Queensland, Faculty Of Science, Mathematics Department
2009 - 2012	Instructor, University Of Queensland, Faculty Of Science, Mathematics Department
2009 - 2009	Research Assistant, Koc University, Faculty Of Science, Department Of Mathematics
2007 - 2009	Research Assistant, Bogazici University, Faculty Of Arts And Sciences, Department Of Mathematics

## Academic and Administrative Experience

2019 - Continues	FEDEK Üyesi, Yıldız Technical University, Faculty of Arts & Science, Department of Mathemeatics
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## Courses

2018 - 2019, 2015 - 2016	Advanced Algebra, Postgraduate
2018 - 2019, 2017 - 2018, 2016 - 2017, 2014 - 2015	Mathematics II, Undergraduate
2018 - 2019, 2016 - 2017	Seminar, Postgraduate
2018 - 2019	Matematik I, Undergraduate
2017 - 2018, 2015 - 2016	Lineer Cebir, Undergraduate
2017 - 2018, 2016 - 2017	Linear Algebra, Undergraduate
2018 - 2019	Matematik I, Undergraduate
2016 - 2017	Introduction to Number Theory, Undergraduate
2016 - 2017, 2015 - 2016	Abstract Mathematics, Undergraduate

2015 - 2016	Data Structures, Undergraduate
2015 - 2016	Abstract Algebra, Undergraduate
2015 - 2016	Advanced Programming Techniques, Postgraduate
2016 - 2017	Algebra 1, Undergraduate
2014 - 2015	Lineer Cebir 2, Undergraduate
2015 - 2016	Linear Algebra 1, Undergraduate
2013 - 2014	Calculus 1, Undergraduate
2011 - 2012	Discrete Mathematics, Undergraduate

## Advising Theses

Continues	DEMİRKALE F., Doctorate, M.Bulut(Student), Bazı Özel Sınıflara Ait Kodların Sınıflandırılması ve Bunlara Ait Özelliklerin İncelenmesi
Continues	DEMİRKALE F., Doctorate, T.Arkan(Student), Kombinatoryal Problemlere Cebirsel Yaklaşımlar
Continues	DEMİRKALE F., Doctorate, G.Yeşilkurt(Student), Kombinatoryal Yapıların Cebirsel Özellikleri
2017	DEMİRKALE F., Postgraduate, K.Duran(Student), On Designs Derived From Codes
2017	DEMİRKALE F., Postgraduate, E.Yıldız(Student), Quantum Codes Over Eisenstein-Jacobi Integers
2017	DEMİRKALE F., Doctorate, A.Bayram(Student), Sonlu ve Değişmeli Halkalarda Lineer Kodlar
2016	DEMİRKALE F., Postgraduate, A.Mohammed(Student), On the Graph Coloring Problem

## Jury Memberships

September 2019	Doctorate, Doctorate, Koç Üniversitesi
July 2019	Doctorate, Doctorate, Yıldız Teknik Üniversitesi
July 2019	Doctorate, Doctorate, Yıldız Teknik Üniversitesi
June 2019	Doctorate, Doctorate, İstanbul Üniversitesi
November 2018	Doctoral Examination, Doctoral Examination, Yıldız Teknik Üniversitesi
June 2018	Doctorate, Doctorate, Yıldız Teknik Üniversitesi
April 2018	Doctoral Examination, Doctoral Examination, Yıldız Teknik Üniversitesi
December 2017	Post Graduate, Post Graduate, İstanbul Üniversitesi
December 2017	Doctoral Examination, Doctoral Examination, Yıldız Teknik Üniversitesi
October 2017	Appointment to Academic Staff-Assistant Professorship, Appointment Academic Staff, Gebze Teknik Üniversitesi
July 2017	Post Graduate, Post Graduate, Yıldız Teknik Üniversitesi
July 2017	Post Graduate, Post Graduate, Yıldız Teknik Üniversitesi
June 2017	Post Graduate, Post Graduate, Yıldız Teknik Üniversitesi
June 2017	Doctorate, Doctorate, Yıldız Teknik Üniversitesi
December 2016	Post Graduate, Post Graduate, Yıldız Teknik Üniversitesi
November 2016	Doctoral Examination, Doctoral Examination, Yıldız Teknik Üniversitesi
June 2016	Post Graduate, Post Graduate, Yıldız Teknik Üniversitesi

## Published journal articles indexed by SCI, SSCI, and AHCI

1. Cyclic codes over  $F_2 + uF_2 + vF_2 + v^2F_2$  with respect to the homogeneous weight and their applications to DNA codes  
Bulut Yılğör M., Gürsoy F., Öztaş E. S., DEMİRKALE F.

Applicable Algebra in Engineering, Communications and Computing, vol.32, no.5, pp.621-636, 2021 (SCI-Expanded)

- II. **Anti-Pasch optimal coverings with triples**  
DEMİRKALE F., Donovan D., Grannell M.  
JOURNAL OF COMBINATORIAL DESIGNS, vol.29, no.2, pp.84-113, 2021 (SCI-Expanded)
- III. **Maximum partial triple systems on 16 and 17 points**  
Demirkale F., Donovan D., Grannell M.  
Utilitas Mathematica, pp.1-22, 2020 (SCI-Expanded)
- IV. **Anti-Pasch optimal packings with triples**  
DEMİRKALE F., DONOVAN D., Grannell M.  
Journal of Combinatorial Designs, vol.27, no.6, pp.353-368, 2019 (SCI-Expanded)
- V. **The enumeration of cyclic mutually nearly orthogonal Latin squares**  
DEMİRKALE F., Donovan D. M., Kokkala J. I., Marbach T. G.  
JOURNAL OF COMBINATORIAL DESIGNS, vol.27, no.5, pp.265-276, 2019 (SCI-Expanded)
- VI. **Orthogonal trades in complete sets of MOLS**  
Cavenagh N. J., DONOVAN D., DEMİRKALE F.  
ELECTRONIC JOURNAL OF COMBINATORICS, vol.24, no.3, 2017 (SCI-Expanded)
- VII. **Difference Covering Arrays and Pseudo-Orthogonal Latin Squares**  
DEMİRKALE F., DONOVAN D., Hall J., KHODKAR A., Rao A.  
GRAPHS AND COMBINATORICS, vol.32, no.4, pp.1353-1374, 2016 (SCI-Expanded)
- VIII. **Orthogonal Trades and the Intersection Problem for Orthogonal Arrays**  
DEMİRKALE F., Donovan D. M., Kucukciftci S., Yazici E. S.  
GRAPHS AND COMBINATORICS, vol.32, no.3, pp.903-912, 2016 (SCI-Expanded)
- IX. **Intersection Problem for Simple 2-fold  $(3n, n, 3)$  Group Divisible Designs**  
Demirkale F., DONOVAN D., Lindner C. C.  
GRAPHS AND COMBINATORICS, vol.31, no.3, pp.537-545, 2015 (SCI-Expanded)
- X. **Direct Constructions for General Families of Cyclic Mutually Nearly Orthogonal Latin Squares**  
Demirkale F., DONOVAN D., KHODKAR A.  
JOURNAL OF COMBINATORIAL DESIGNS, vol.23, no.5, pp.195-203, 2015 (SCI-Expanded)
- XI. **On The Spectrum of Minimal Defining Sets of Full Designs**  
Demirkale F., Yazici E. S.  
GRAPHS AND COMBINATORICS, vol.30, no.1, pp.141-157, 2014 (SCI-Expanded)
- XII. **Constructing D-optimal symmetric stated preference discrete choice experiments**  
Demirkale F., Donovan D., Street D. J.  
JOURNAL OF STATISTICAL PLANNING AND INFERENCE, vol.143, pp.1380-1391, 2013 (SCI-Expanded)

## Articles Published in Other Journals

- I. **ON PERFECT CODES IN THE LEE-ROSENBLOOM-TSFASMAN-JAIN METRIC**  
Bulut Yılğör M., Demirkale F.  
SIGMA JOURNAL OF ENGINEERING AND NATURAL SCIENCES-SIGMA MUHENDISLIK VE FEN BILIMLERI DERGISI, vol.37, no.4, pp.1321-1329, 2019 (ESCI)
- II. **Simple 2-fold  $(3n, n, 3)$  group divisible designs having a prescribed number of triples in common**  
Demirkale F., DONOVAN D., LINDNER C.  
Electronic Notes in Discrete Mathematics, vol.40, pp.107-111, 2013 (Scopus)

## Refereed Congress / Symposium Publications in Proceedings

- I. **SOME DNA CODES OVER  $F_2$**

Öztaş E. S., Bulut Yılğör M., Gürsoy F., Demirkale F.

International Congress on Fundamental and Applied Sciences, Tirane, Albania, 18 - 20 June 2019, vol.6, no.1, pp.147-148

II. **Cyclic codes over a special non-chain ring with respect to the homogeneous weight**

Bulut Yılğör M., Demirkale F., Öztaş E. S.

International Conference on Mathematical Advances and Applications, İstanbul, Turkey, 03 May 2019, vol.2, no.1, pp.66

III. **Anti-Pasch Maximal Partial Triple Systems**

DEMİRKALE F.

IMBM Discrete Mathematics Days, İstanbul, Turkey, 27 October 2018, pp.5

IV. **Maximum partial triple systems on 16 and 17 points**

DEMİRKALE F., DONOVAN D., Grannell M.

Istanbul Design Theory Workshop, İstanbul, Turkey, 03 September 2018, pp.1

V. **Quantum codes over Eisenstein-Jacobi integers**

Yıldız E., Demirkale F.

7th International Conference on Modeling, Simulation, and Applied Optimization, ICMSAO 2017, Sharjah, United Arab Emirates, 4 - 06 April 2017, pp.1-5

VI. **A New Class of Quantum Codes**

Yıldız E., Demirkale F.

Antalya Algebra Days 2017, İzmir, Turkey, 17 - 21 May 2017

VII. **On Mutually Pseudo-Orthogonal Latin Squares**

DEMİRKALE F.

International Congress on Fundamental and Applied Sciences 2016, İstanbul, Turkey, 22 August 2016, pp.95

VIII. **On Mutually Nearly Orthogonal Latin Squares**

DEMİRKALE F.

3rd Istanbul Design Theory, Graph Theory and Combinatorics Workshop, İstanbul, Turkey, 13 June 2016, pp.1

IX. **The enumeration of cyclic MNOLS**

Marbach T., DEMİRKALE F., DONOVAN D.

39th Australasian Conference on Combinatorial Mathematics & Combinatorial Computing, Brisbane, Australia, 06 December 2015, pp.29

X. **Skolem sequences and Difference covering arrays**

Rao A., Hall J., DEMİRKALE F., DONOVAN D.

The 59th Annual Meeting of the Australian Mathematical Society, Adelaide, Australia, 30 September 2015, pp.82

XI. **Difference Covering Arrays and Nearly Orthogonal Latin Square**

DEMİRKALE F., DONOVAN D., KHODKAR A., Hall J., Rao A.

The 59th Annual Meeting of the Australian Mathematical Society, Adelaide, Australia, 29 September 2015, pp.81

XII. **Mutually Pseudo-orthogonal Latin squares, difference matrices and LDPC codes**

Rao A., DONOVAN D., Hall J., DEMİRKALE F.

8th Australia New Zealand Mathematics Convention, Melbourne, Australia, 10 December 2014, pp.1

XIII. **Linearly independent Latin squares**

DEMİRKALE F.

The 37th Australasian Conference on Combinatorial Mathematics & Combinatorial Computing, Perth, Australia, 09 December 2013, pp.30

XIV. **The intersection problem for 2-fold  $(3n, n, 3)$  GDDs**

DEMİRKALE F.

Combinatorics, Perugia, Italy, 09 September 2012, pp.1

XV. **Constructing D-optimal Symmetric Discrete Choice Experiments**

DEMİRKALE F.

The 23rd British Combinatorial Conference, Exeter, United Kingdom, 04 July 2011, pp.1

XVI. **Enumeration of orthogonal arrays**

DEMİRKALE F., Burton B., DONOVAN D.

The 2nd İstanbul Design Theory, Graph Theory and Combinatorics Conference, İstanbul, Turkey, 27 June 2011, pp.27

XVII. **Optimal discrete choice experiments**

DEMİRKALE F.

The 54th Annual Meeting of the Australian Mathematical Society, Brisbane, Australia, 27 September 2010, pp.80

XVIII. **On defining sets of full designs**

DEMİRKALE F.

AMSI Australian Graduate Theme Program in Mathematical Sciences, Brisbane, Australia, 05 July 2010, pp.1

## Supported Projects

2019 - Continues	Roboteori: Robotik Kodlama Eğitim Kitleri, TUBITAK Project
2019 - 2026	Tusaş ve Yıldız Teknik Üniversitesi Sanayi Programı, TUBITAK Project
2019 - 2022	Kombinatoryel Tasarım Problemleri, TUBITAK Project
2019 - 2021	Robotik Kodlama Eğitim Kitleri, Technopark
2016 - 2020	F <sub>2</sub> +uF <sub>2</sub> +vF <sub>2</sub> +v <sup>2</sup> F <sub>2</sub> Halkası Üzerindeki Devirli Kodlar ve DNA Kodlara Uygulamaları, Project Supported by Higher Education Institutions
2015 - 2017	Sonlu ve Değişmeli Halkalarda Lineer Kodlar, Project Supported by Higher Education Institutions
2011 - 2014	Çizge Tasarımlarında Yapısal Problemler, TUBITAK Project
2009 - 2013	Algorithms and computation in four-dimensional topology, Other International Funding Programs
2009 - 2012	Choice experiments to improve predictive power for policy makers, Other International Funding Programs
2008 - 2011	Bir Şifre Paylaşımı Metodu Kombinatoryel Tasarımlarda Belirleyici Kümeler, TUBITAK Project

## Activities in Scientific Journals

2017 - Continues	Journal of Engineering Technology and Applied Sciences, Editor
2018 - 2018	Communications in Mathematics and Applications, Special Issue Editor

## Memberships / Tasks in Scientific Organizations

2013 - Continues	American Mathematical Society, Member
2010 - Continues	Australian Mathematical Society, Member
2010 - Continues	Combinatorial Mathematics Society of Australasia, Member

## Scientific Refereeing

July 2019	Journal Of Statistical Planning And Inference, Journal Indexed in SCIE
July 2019	Journal Of Engineering Technology And Applied Sciences, Other Indexed Journal
March 2019	Journal of Engineering Technology and Applied Sciences, Other Indexed Journal
September 2018	Discrete Mathematics, SCI Journal
August 2018	Communications in Mathematics and Applications, Other Indexed Journal
August 2018	Communications in Mathematics and Applications, Other Indexed Journal
May 2018	Australian & New Zealand Journal Of Statistics, Journal Indexed in SCIE
March 2018	Sigma Journal of Engineering and Natural Sciences, Journal Indexed in ESCI
March 2018	Journal of Engineering Technology and Applied Sciences, Other Indexed Journal

March 2018	Project Supported by Higher Education Institutions, BAP Research Project, Karamanoglu Mehmetbey University, Turkey
December 2017	Journal of Engineering Technology and Applied Sciences, Other Indexed Journal
July 2017	The Australasian Journal of Combinatorics, Journal Indexed in ESCI
July 2017	Journal of Combinatorial Designs, SCI Journal
May 2017	Hacettepe Journal Of Mathematics And Statistics, Journal Indexed in SCI-E
April 2017	Journal of Engineering Technology and Applied Sciences, Other Indexed Journal
April 2017	Journal of Engineering Technology and Applied Sciences, Other Indexed Journal
April 2017	Journal of Engineering Technology and Applied Sciences, Other Indexed Journal
April 2017	Journal of Engineering Technology and Applied Sciences, Other Indexed Journal
January 2017	Journal of Engineering Technology and Applied Sciences, Other Indexed Journal
November 2015	Journal of Algebra Combinatorics Discrete Structures and Applications, Other Indexed Journal
September 2015	Journal of Algebra Combinatorics Discrete Structures and Applications, Other Indexed Journal
October 2014	Journal of Combinatorial Designs, SCI Journal
May 2009	The Bulletin of the ICA , Other Indexed Journal

## Scientific Consultations

2019 - Continues	Scientific Consultancy, MHM ROBOTİK ELEKTRONİK ÜRÜNLERİ SAN. VE TİC. LTD. ŞTİ.
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## Metrics

Publication: 32  
 Citation (WoS): 22  
 Citation (Scopus): 22  
 H-Index (WoS): 2  
 H-Index (Scopus): 2

## Congress and Symposium Activities

2019	IMBM Discrete Mathematics Days, Attendee, İstanbul, Turkey
2018	IMBM Discrete Mathematics Days, Attendee, İstanbul, Turkey
2018	Istanbul Design Theory Workshop, Attendee, İstanbul, Turkey
2016	International Congress on Fundamental and Applied Sciences, Attendee, İstanbul, Turkey
2016	International Congress on Fundamental and Applied Sciences, Session Moderator, İstanbul, Turkey
2016	3rd Istanbul Design Theory, Graph Theory and Combinatorics Workshop, Attendee, İstanbul, Turkey
2016	3rd Istanbul Design Theory, Graph Theory and Combinatorics Workshop, Session Moderator, İstanbul, Turkey
2014	Antalya Algebra Days XVI, Attendee, Antalya, Turkey
2013	The 37th Australasian Conference on Combinatorial Mathematics & Combinatorial Computing, Attendee, Perth, Australia
2013	Open Problems in Mathematical and Computational Sciences Conference, Attendee, İstanbul, Turkey
2012	The 36th Australasian Conference on Combinatorial Mathematics & Combinatorial Computing, Attendee, Sydney, Australia
2012	Combinatorics, Attendee, Perugia, Italy

2011	The International Workshop on Hadamard Matrices and their Applications, Attendee, Melbourne, Australia
2011	The 35th Australasian Conference on Combinatorial Mathematics & Combinatorial Computing, Attendee, Melbourne, Australia
2011	The 23rd British Combinatorial Conference, Attendee, United Kingdom
2011	The 2nd İstanbul Design Theory, Graph Theory and Combinatorics Conference, Attendee, İstanbul, Turkey
2010	The 34th Australasian Conference on Combinatorial Mathematics & Combinatorial Computing, Attendee, Canberra, Australia
2010	The 54th Annual Meeting of the Australian Mathematical Society, Attendee, Brisbane, Australia
2010	AMSI Australian Graduate Theme Program in Mathematical Sciences, Attendee, Brisbane, Australia
2009	NoNA Spring School on Algorithms, Attendee, İstanbul, Turkey
2008	İstanbul Design Theory and Combinatorics Conference, Attendee, İstanbul, Turkey

## Scholarships

2009 - 2013	Queensland Üniversitesi - Research Scholarship, University
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## Awards

January 2012	School of Mathematics and Physics Award of Research Scholar, Queensland Üniversitesi
December 2009	International Research Tuition Award, Queensland Üniversitesi