

**H.Melis Tekin Akçin**  
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**ANKARA/ TURKEY**



**Date of Birth** : 25.10.1985  
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### Academic

2009-2015- Phd, Hacettepe University, Department of Mathematics  
Title : Universal Modules of Differential Operators  
Supervisor : Ali Erdogan

2007-2009-Msc, Hacettepe University, Department of Mathematics  
Title :High Order Differential Operators and Their Universal Modules  
Supervisor :Ali Erdogan

2003-2007-Bsc, Hacettepe University, Department of Mathematics

### Work Experience

- Hacettepe University Department of Mathematics, Research Assistant, 2007-2015.
- University of Sheffield Department of Mathematics, Academic Visitor, April 2013-January 2014.
- Hacettepe University Department of Mathematics, Dr. Research Assistant, 2015-present.

## Research Interests

My research interests are commutative algebra and homological algebra. I am interested in the following problems so far. I am also interested in Module theory.

- Differential operators and their universal modules.
- Projective dimensions of universal modules of order  $n$ .
- Rationality of the Betti series of universal modules.
- de Rham complex of Universal Modules and their cohomologies.
- Armendariz rings and their generalizations to the Ore extensions of derivation type  $R[x; \delta]$ .
- Radical theory of rings.

## Thesis

1. Universal modules of differential operators, Phd Thesis, 2015.
2. High order differential operators and their universal modules, Msc Thesis, 2009.

## Publications

1. Weak  $\delta$ -Skew Armendariz Rings, submitted.
2. (with V.V. Bavula) On approximations of the de Rham complex and their cohomology, accepted in Comm. Alg.
3. (with A. Erdoğlan) Some results on Betti series of universal modules of differential operators, submitted.
4. (with A. Erdoğlan) On Betti series of the universal modules of second order derivations of  $k[x_1, x_2, \dots, x_s]/(f)$ , Turkish Journal of Mathematics 38, 25-28, 2014.

## Conferences and Seminars

1. 2018, 28-31 August - 7<sup>th</sup> Ring, Module and Algebra Workshop, Dokuz Eylül University, İzmir, Turkey. **(invited speaker)**  
**I gave 10 hours of lecture series on representation theory of Artin algebras.**
2. 2018, 20-23 June, New Trends in Rings and Modules, Gebze Technical University, Gebze, Kocaeli. **(speaker)**
3. 2017, 4-8 September, Some Trends in Algebra, Charles University, Prague, Czech Republic. **(speaker)**
4. 2017, 3-7 July, 6<sup>th</sup> Ring, Module and Algebra Workshop, Dokuz Eylül University, İzmir, Turkey.
5. 2017, May 25-26, 12<sup>th</sup> Ankara Mathematics Day, Hacettepe University, Ankara, Turkey.
6. 2017, April 28-29, 4th Workshop of Association for Turkish Women in Maths, METU, Ankara, Turkey.
7. 2015, June 1-5, Rings and Module Theory Workshop, Hacettepe University, Ankara, Turkey.
8. 2015, June 8-11, Noncommutative Rings and Their Applications, IV, Lens, France **(speaker)**.
9. 2014, May 9-13, 16<sup>th</sup> Antalya Algebra Days, Antalya, Turkey **(speaker)**.
10. 2014, August 5-8, International Conference on Algebra and Number Theory, Samsun, Turkey **(speaker)**.
11. 2013, August 28-30, Kent Algebra Days, University of Kent, Canterbury, UK.
12. 2013, November 11-13, 38th meeting of the Algebra and Representation Theory in the North (ARTIN), University of Aberdeen, Scotland.
13. 2012, August 20-26, International Conference on Algebra is dedicated to 100th anniversary of S.M. Chernikov, Kiev, Ukraine **(speaker)**.
14. 2012, June 11-15, Workshop on Ring Theory, Karabuk University, Turkey.
15. 2011, June 2-3, 6<sup>th</sup> Ankara Mathematic Days, Hacettepe University, Turkey.
16. 2010, September 20-26, International School and Workshop on Modern Algebra and Its Applications, Rustaveli State University, Batumi, Georgia **(speaker)**.
17. 2010, August 4-7, 23<sup>rd</sup> National Mathematics Symposium, Erciyes University, Kayseri, Turkey.
18. 2010, June 3-4, 5<sup>th</sup> Ankara Mathematic Days, TOBB ETU, Ankara Turkey.

19. 2010, May 28, Seminar, METU, Ankara, Turkey (**speaker**).
20. 2010, April 28, Seminar, Hacettepe University, Ankara, Turkey (**speaker**).
21. 2010, October 13-15, Algebra and Number Theory Symposium in honour of Prof. Dr. Mehpare Bilhan, METU, Ankara, Turkey.
22. 2009, June 4-5, 4th Ankara Mathematic Days, METU, Ankara, Turkey.
23. 2008, September 1-4, 21st National Mathematics Symposium, Koc University, Istanbul, Turkey.
24. 2008, August 18-22, International Conference on Ring and Module Theory, Hacettepe University, Ankara, Turkey.
25. 2008, Math Summer School, Mathematic Village, Sirince, Ankara, Turkey.

### Projects and Awards

- TUBITAK- 2214 Research Fellowship Program, 2nd Term, 2012.
- BAP-Hacettepe University- Project number: FBD-14108, 2017.

### Teaching Experience

- **MAT 119- Basic Mathematics (lecturer)**  
2017/2018 Fall  
**Content of the course:**  
Propositional logic, Sets, Functions, Equivalence relations, Permutations, Combinations, Binomials, Matrices, Determinants, Systems of linear equations.
- **IMO 214- Linear Algebra II (lecturer)**  
2017/2018 Spring  
**Content of the course:**  
Determinants and their properties, Cramer's Rule, Vector Spaces, Subspaces, Linear Dependence and Independence, Bases and Dimensions, Definition and Examples of Linear Transformations, The Vector Space of Linear Transformations.

- **IMO 317- Introduction to Abstract Algebra (lecturer)**

2018/2019 Spring

**Content of the course:**

Binary relations, Definition of group, Some important examples of groups, Finite groups, Subgroups, Cyclic groups and their properties, Permutation groups, Alternating groups, Order of an element and Lagrange's Theorem, Group homomorphisms, Normal subgroups, Quotient groups, Definition of ring and some examples, Definition of field and some examples.

- **Linear Algebra 1**

2010/2011 Fall, 2011/2012 Fall, 2012/2013 Fall, 2013/2014 Fall, 2014/2015 Fall

**Content of the course:**

Matrices, Operations on matrices, Row equivalence, Invertibility, System of linear equations, Determinants, Vector spaces, Linear dependence and independence, Bases, Definition and examples of linear transformations, The vector space of linear transformations.

- **Linear Algebra 2**

2010/2011 Spring, 2011/2012 Spring, 2012/2013 Spring, 2013/2014 Spring, 2014/2015 Spring

**Content of the course:**

Eigenvalues, Eigenvectors, Diagonalization, Normal form of polynomial matrices, Rational and Jordan canonical forms, Diagonalizable complex matrices, Inner product spaces.

- **Calculus 1**

2007/2008 Fall, 2008/2009 Fall, 2009/2010 Fall, 2010/2011 Fall, 2011/2012 Fall, 2012/2013 Fall, 2013/2014 Fall, 2014/2015 Fall, 2015/2016 Fall

**Content of the course:**

Functions and limits, Derivatives, Further applications of differentiation, Integrals, Inverse functions, Logarithms and exponentials, Methods of integration, Further applications of integration.

- **Calculus 2**

2007/2008 Spring, 2008/2009 Spring, 2009/2010 Spring, 2010/2011 Spring,  
2011/2012 Spring, 2012/2013 Spring, 2013/2014 Spring, 2014/2015 Spring

**Content of the course:**

Sequences and series, Plane analytic geometry and polar coordinates, Vectors in the plane, Vectors in space, Partial differentiation, Multiple integration, Line and surface integrals

- **Abstract Algebra 1**

2017/2018 Fall, 2018/2019 Fall

**Content of the course:**

Groups, Subgroups, Group homomorphisms, Cyclic groups, Cosets, Lagrange's Theorem, Normal subgroups, Quotient groups, Isomorphism theorems, Dihedral groups, Symmetric groups, Group actions, Sylow Theorems and their applications.

- **Abstract Algebra 2**

2016/2017 Spring, 2017/2018 Spring

**Content of the course:**

Introduction to rings, Elementary properties of rings, Ideals and quotient rings, Integral domains and fields, Principal ideal domains, Ring homomorphisms, Isomorphism theorems, Prime and maximal ideals, Polynomial rings, Euclidean domains, Unique factorization domains, Irreducibility of polynomials, Field extensions, Algebraic extensions, Finite fields.

<b>Conference Organizer</b>
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- 4<sup>th</sup> Ring, Module and Algebra Workshop, 1-5 June 2015, Hacettepe University, ANKARA.
- Ankara Mathematics Day , 25-26 June 2017, Hacettepe University, ANKARA.

## Personal Services

- Reviewer for Zentralblatt Math.

### Reviewed Papers:

1. Alkarni, Shalan; Lang, Jeffrey, **Three-dimensional Jacobian derivations and divisor class groups**, Commun. Algebra 45, No. 8, 3320-3333 (2017).
2. Jespers, Eric; Van Camphenout, Maya, **Finitely generated algebras defined by homogeneous quadratic monomial relations and their underlying monoids II**, J. Algebra 492, 524-546 (2017).
- 3.

## My Visitors

- Vladimir Bavula, 14-25 May 2017, University of Sheffield, UK.

## Interests

- I like writing short stories. I've also attended a workshop on short stories which is given by two of the famous short story authors in Turkey, by Cemil Kavukçu and Fadime Uslu, 26 February 2017 - 16 April 2017.
- I like reading.
- I enjoy taking self improvement courses.
  1. **Udemy Course:** Mindfulness to Create and Amazing Life by Richard Butler.
  2. **Udemy Course:** Productivity Masterclass by Brandon Hakim the founder of InsiderSchool.com.
  3. **Udemy Course:** Double Your Productivity by Tomorrow Morning by Brandon Hakim.
  4. **Udemy Course:** Productivity and Time Management for the Overwhelmed by Josh Paulsen.
  5. **Udemy Course:** Plan Your Success: Vision and Goal Setting Systems-Scott Paton and Richard Butler.
  6. **Udemy Course:** Find your Life Purpose and Maximize Your Impact by Brandon Hakim.
- I am also interested in children's books. I have a blog (see below).  
<http://duslerinmavisi.blogspot.com.tr/>
- I like travelling. I've visited Italy, France, England, Ukraine, Georgia, Prague. I've also visited a lot of places in my home country, Turkey.
- I like to taste different foods since it is the best way to experience different cultures.

