

# Tuğba YILDIRIM

## Curriculum Vitae

### Education

- 2011–2018 **PhD of Mathematical Engineering**, *Istanbul Technical University*, Istanbul, GPA – 4.00/4.00.  
2007–2011 **Bachelor of Mathematics**, *Istanbul University*, Istanbul, GPA – 3.82/4.00.

### Ph.D. Thesis

- Title *Local Cohomology and Radically Perfect Ideals*  
Supervisor Professor Dr. Vahap Erdoğan  
Description Determining the radically perfect (set theoretic complete intersection) ideals is one of the long-standing problem in commutative algebra. In the study of this thesis, we first determine some properties of local cohomology modules and their Matlis duals and then use our results to relate the local cohomology modules and the radically perfect ideals. Our motivation is suggested by the well-known fact that if  $I$  is an ideal of a Noetherian ring  $R$  of height  $n$ , and if there exists some  $R$ -module  $M$  such that  $H_i^j(M) \neq 0$  for  $i > n$ , then  $I$  is not a set theoretic complete intersection.

### Research Areas

- o Commutative Algebra
- o Local Cohomology Modules
- o Applications of  $\mathcal{D}$ -Modules to Commutative Algebra
- o  $F$ - Modules

### Experience

#### Academic Experience

- 2016–2017 **Visiting Research Scholar**, UNIVERSITY OF MINNESOTA, Minnesota, Project Subject: *Applications of  $\mathcal{D}$ - Modules to Commutative Algebra*.  
Mentor: Prof. Dr. Gennady Lyubeznik

#### Working Experience

- 2019– **Asst. Prof.Dr.**, ISTINYE UNIVERSITY, Istanbul, Department of Mathematics.  
2019 **Part-Time Lecturer**, ISTANBUL SABAHATTIN ZAIM UNIVERSITY, Istanbul, Courses Taught: Linear Algebra.  
2019 **Part-Time Lecturer**, ISTANBUL BILGI UNIVERSITY, Istanbul, Courses Taught: Computational and Mathematical Numeracy for Social Scientists II.

2011–2018 **Research Assistant**, ISTANBUL TECHNICAL UNIVERSITY, Istanbul,  
Courses Taught: Calculus I, II.

## Publications

### 1. Journal Publications

1. Gennady Lyubeznik and **T. Yıldırım**, "On The Matlis Duals of Local Cohomology Modules", Proc. Amer. Math. Soc., **146** (2018),no. 9, 3715–3720. DOI: <https://doi.org/10.1090/proc/14038>.
2. V. Erdoğan and **T. Yıldırım**, "Cohomological Dimension and Top Local Cohomology Modules", Rocky Mountain J. Math., **49** (2019), no. 6, 1843–1855. DOI:10.1216/RMJ-2019-49-6-1843. <https://projecteuclid.org/euclid.rmjm/1572746421>
3. S. Harman and **T. Yıldırım**, "Modules of Finite Length", Math. Reports (To Appear)(SCI-Expanded).

### 2. Conference Talks and Poster Presentations

1. **T. Yıldırım**, "On the Artinianness of Top Local Cohomology Modules", ICRAPAM 2018, Karadeniz Technical University Prof. Dr. Osman Turan Convention Center, Trabzon (July 23-27, 2018), <http://2018.icrapam.org>
2. **T. Yıldırım**, "On the Matlis duals of local cohomology modules in characteristic  $p > 0$ ", Antalya Algebra Days XX, Nesin Mathematics Village, (May 16-20, 2018), [http://85.111.17.208/nvetkinlik/events/2018-aad/acg\\_2018.pdf](http://85.111.17.208/nvetkinlik/events/2018-aad/acg_2018.pdf).
3. **T. Yıldırım**, "On the top local cohomology modules", Midwest Commutative Algebra Conference, Purdue University, (August 3-7, 2015) (Poster Presentation), [http://www.math.purdue.edu/~ulrich/Purdue\\_2015/index.html](http://www.math.purdue.edu/~ulrich/Purdue_2015/index.html).
4. **T. Yıldırım**, "On the cohomological dimension of local cohomology modules", Antalya Algebra Days XVII, Nesin Mathematics Village, (May 20-24, 2015), [http://85.111.17.208/nvetkinlik/etkinlikler/2015\\_acg/acg.pdf](http://85.111.17.208/nvetkinlik/etkinlikler/2015_acg/acg.pdf).

## Invited Talks

1. **T. Yıldırım**, "Applications of  $F$ -Modules to Local Cohomology", Doğuş University, Workshop on Geometry and Dynamic Systems , (June 14, 2019),
2. **T. Yıldırım**, "On the Matlis duals of  $F$ -finite  $F$ -modules", Istanbul University, Department of Mathematics Seminars, (December 7, 2017).
3. **T. Yıldırım**, "Applications of  $\mathcal{D}$ -Modules to Local Cohomology", Junour Colloquium Talks, University of Minnesota (April 19, 2017).
4. **T. Yıldırım**, "Applications of  $\mathcal{D}$ -Modules to Commutative Algebra", Istanbul Technical University, Department of Mathematics Seminars, (December 2, 2016).
5. **T. Yıldırım**, "Affine Varieties", Graduate Student Seminars, Istanbul Technical University, (March 15, 2013).

## Awards

- 2015 TUBITAK-BİDEB 2214-A -International Research Fellowship Programme (for PhD Students) 2015/2
- 2011-2015 TUBITAK-BİDEB 2211 National Doctoral Fellowship Programme

*Istinye University, Faculty of Science and Letters*  
*Department of Mathematics, Zeytinburnu, İstanbul*  
✉ [tugba.yildirim@istinye.edu.tr](mailto:tugba.yildirim@istinye.edu.tr)

## Organization skills

**Member of The Local Organization Committee, ICRAPAAM 2019**, Istanbul Medeniyet University, June 12-15, 2019.

**Member of The Local Organization Committee, ICRAPAAM 2018**, Karadeniz Technical University, July 23-27, 2018.

## Computer skills

Intermediate Microsoft Office

Advanced  $\LaTeX$

## Languages

Turkish

*Mothertongue*

English UDS-80, YOKDIL-95

*Con conversationally fluent*