

Ahmet Batal, Associate Professor

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Education

Ph.D. in Mathematics <i>Sabancı University, İstanbul, Türkiye</i>	2009-2013
M.S. in Mathematics <i>Koç University, İstanbul, Türkiye</i>	2004-2008
B.A. in Physics <i>Koç University, İstanbul, Türkiye</i>	1999-2004

Academic Appointments

Associate Professor <i>İzmir Institute of Technology, İzmir, Türkiye</i>	2024 – Present <i>Department of Mathematics</i>
Asistant Professor <i>İzmir Institute of Technology, İzmir, Türkiye</i>	2015 – 2024 <i>Department of Mathematics</i>

Publications

- Batal, A. (2026). On the construction of xor-magic graphs. *Discrete Applied Mathematics*, 379, 288-315.
- Batal, A. (2026). Bounding the multiplicities of eigenvalues of graph matrices in terms of circuit rank. *Hacettepe Journal of Mathematics and Statistics*, 55(2), 502-511.
- Batal, A. (2024). Effects of edge addition or removal on the nullity of a graph. *Discrete Applied Mathematics*, 357, 56-65.
- Batal, A., Gügümcü, N. (2023). k-color region select game. *Journal of the Mathematical Society of Japan*, 75(4), 1409-1429.
- Batal, A., Göral, H., Eyidoğan, S. (2023). Irreducibility and Primality in Differentiability Classes. *Real Analysis Exchange*, 48(1), 119-138.
- Batal, A. (2022). Parity of an odd dominating set. *Communications Faculty of Sciences University of Ankara Series A1 Mathematics and Statistics*, 71(4), 1023-1028.
- Batal, A., Özşarı, T., Yılmaz, K. C. (2021). Stabilization of higher order Schrödinger equations on a finite interval: Part I. *Evolution Equations and Control Theory*, 10(4), 861-919.
- Batal, A., Fokas, A. S., Özşarı, T. (2020). Fokas method for linear boundary value problems involving mixed spatial derivatives. *Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences*, 476, 20200076.

- Özsarı, T., Batal, A. (2019). Pseudo-Backstepping and Its Application to the Control of Korteweg–de Vries Equation from the Right Endpoint on a Finite Domain. *SIAM Journal on Control and Optimization*, 57(2), 1255-1283.
- Batal, A. Özsarı, T. (2019). Output feedback stabilization of the linearized Korteweg-de Vries equation with right endpoint controllers. *Automatica*, 109, 108531.
- Batal, A., Özsarı, T. (2016). Nonlinear Schrödinger equation on the half-line with non-linear boundary condition. *Electronic Journal of Differential Equations*, 222, 1-20.
- Batal, A. (2013). Characterization of potential smoothness and the Riesz basis property of the Hill–Schrödinger operator in terms of periodic, antiperiodic and Neumann spectra. *Journal of Mathematical Analysis and Applications*, 405(2), 453-465.
- Mostafazadeh, A., Batal, A. (2004). Physical aspects of pseudo-Hermitian and PT-symmetric quantum mechanics. *Journal of Physics A: Mathematical and General*, 37(48), 11645.

Submitted Papers

- Batal, A. (submitted). A sharp existence theorem for regular distance magic graphs of odd order.
- Batal, A., Çam Çelik, Ş., Göral, H., Sertbaş, D. C. (submitted). On sequences which contain various progressions.

Supervised Theses

M.Sc. Theses

- **ÖZDEMİR, Derya.** (2022). *Qualitative properties of solutions of some Keller-Segel type systems*. M.Sc. Thesis, İzmir Institute of Technology (IZTECH), Department of Mathematics. (Completed)
- **YAZAN, Tuğba.** (2020). *Semigroup theory and some applications*. M.Sc. Thesis, İzmir Institute of Technology (IZTECH), Department of Mathematics. (Completed)

Ph.D. Theses

- **ALKIN, Aykut.** (2024). *Initial-boundary value problem for the higher order nonlinear Schrödinger equation on the half line*. Ph.D. Thesis, İzmir Institute of Technology (IZTECH), Department of Mathematics. (Completed)
- **SUSUZLU, İdem.** (2024). *Analysis of damped and viscoelastic linear wave equations exposed to external Neumann manipulations*. Ph.D. Thesis, İzmir Institute of Technology (IZTECH), Department of Mathematics. (Completed)

- **TAMCI, Ege.** (2023). *Stability analysis of nonlinear dynamical systems with Lévy type perturbations*. Ph.D. Thesis, İzmir Institute of Technology (IZTECH), Department of Mathematics. (Completed)
- **YILMAZ, Kemal Cem.** (2022). *Boundary feedback stabilization of some evolutionary partial differential equations*. Ph.D. Thesis, İzmir Institute of Technology (IZTECH), Department of Mathematics. (Completed)

Conference Talks

- *XOR-magic graphs*. 10th Gdańsk Conference on Graph Theory, University of Gdańsk, Gdańsk, Poland. 2026
- *Lights Out oyununda ağaçlar üstüne bazı sonuçlar*. 33rd National Mathematics Symposium, Türkiye. 2021
- *Odd dominating sets and parity of their cardinality*. An Istanbul Meeting for World Mathematicians, İstanbul, Türkiye. 2020

Teaching Experience

Calculus, Fundamentals of Mathematics, Linear Algebra, Abstract Algebra, Discrete Mathematics, Graph Theory, Ordinary Differential Equations, Partial Differential Equations, Real Analysis, Complex Analysis, Functional Analysis, Measure Theory, Generalized Functions, Bounded Operator Theory.