

# Mathematics Days VIII

Bogazıcı University  
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istanbul matematiksel bilimler merkezi  
istanbul center for mathematical sciences

## Lower bounds for extremal polynomials

Gökalp Alpan  
Sabancı University

In this talk, I will discuss weighted Chebyshev polynomials and orthogonal polynomials, with a special emphasis on the real line. The weighted Chebyshev polynomials are the monic polynomials that minimize the weighted sup-norm on a given set and monic orthogonal polynomials minimize the  $L^2$  norm associated with a Borel measure. I will survey results involving the lower bounds of the norms of the extremal polynomials mentioned above. I will also discuss some recent results on asymptotics for the lower bounds, which generalize some classical results.

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## TBA

Özlem Beyarslan  
Boğaziçi University

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## A generalization of Alperin Fusion Theorem and its applications

M. Yasir Kızmaz  
Bilkent University

In this talk, we will begin by recalling Alperin-Goldschmidt fusion theorem and its importance in group theory and fusion systems. Then we give our extension of this theorem and discuss its new applications.

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## What is mirror symmetry?

Umut Varolgüneş  
Koç University

Around 1990 a group of physicists made a striking mathematical discovery. They computed the number of rational curves of a given degree in a quintic threefold by considering a simpler problem of an entirely different nature involving a different Calabi-Yau threefold whose Hodge diamond looks like a certain reflection of that of the quintic. This duality was dubbed mirror symmetry and it led to a flurry of activity in mathematics. I will give a summary of the developments that ensued with a bias towards the impact on symplectic geometry and my own research.

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