

# LEFSCHETZ FIBRATIONS DAY

January 10, 2020

Hacettepe University, Ankara

## *Speakers:*

**İnanç Baykur**, UMass Amherst

**Mustafa Korkmaz**, METU

**Nur Sağlam**, Virginia Tech

**Burak Özbağcı**, Koç University

The talks will be in Yaşar Ataman Meeting Room on the second floor of Mathematics Department at Hacettepe University.

	Schedule
09:30-10:30	Nur Sağlam <i>Constructions of Lefschetz fibrations using cyclic group actions</i>
10:30-11:00	<i>Coffee-Tea Break</i>
11:00-12:00	Mustafa Korkmaz <i>Involution generators of mapping class groups</i>
12:00-12:30	<i>Coffee-Tea Break</i>
12:30-13:30	İnanç Baykur <i>Symplectic Calabi-Yaus and exotic rational surfaces via pencils</i>
13:30-14:30	<i>Lunch Break</i>
14:30-15:30	İnanç Baykur <i>Geography of surface bundles over surfaces</i>
15:30-16:00	<i>Coffee-Tea Break</i>
16:00-17:00	Burak Özbağcı <i>Convexity in contact, symplectic and complex topology</i>
17:30	Dinner at Bilkent Center

## Abstracts

### **Nur Sağlam**

*Constructions of Lefschetz fibrations using cyclic group actions*

We construct families of Lefschetz fibrations over  $S^2$  using finite order cyclic group actions on the product manifolds  $\Sigma_g \times \Sigma_g$  for  $g > 0$ . We also obtain more families of Lefschetz fibrations by applying the rational blow-down operation to these Lefschetz fibrations. This is a joint work with Anar Akhmedov and Mohan Bhupal.

**Mustafa Korkmaz**

*Involution generators of mapping class groups*

**İnanç Baykur**

*Symplectic Calabi-Yaus and exotic rational surfaces via pencils*

We will discuss new ideas and techniques for producing positive Dehn twist factorizations of surface mapping classes, which yield novel constructions of symplectic Calabi-Yaus and exotic rational surfaces, via Lefschetz pencils. Parts of this research program is in collaboration with N. Hamada, K. Hayano, M. Korkmaz, and N. Monden.

**İnanç Baykur**

*Geography of surface bundles over surfaces*

An outstanding problem for surface bundles over surfaces, closely related to the symplectic geography problem in dimension four, is to determine for which fiber and base genera there are examples with non-zero signature. We will report on our recent progress (joint with M. Korkmaz), which resolves the question for all fiber and base genera except for about 25 pairs at the time of writing.

**Burak Özbağcı**

*Convexity in contact, symplectic and complex topology*

After giving a comparative review of convexity for contact, symplectic and complex manifolds, I will explain how it is related to Lefschetz fibrations and open books.









