

# Boğaziçi MATH COLLOQUIUM

## Surfaces Covered by Circles and Pythagorean 6-tuples

**Mikhail Skopenkov**

**King Abdullah University of Science and Technology**

**Abstract:**

This is a joint work with R. Krasauskas.

Motivated by potential applications in architecture, we find all analytic surfaces in 3-dimensional Euclidean space such that through each point of the surface one can draw two transversal circular arcs fully contained in the surface. The search for such surfaces traces back to the works of Darboux from the XIXth century.

The proof is based on a reduction to the nice number-theoretic problem of finding Pythagorean 6-tuples of polynomials. This is solved using a new factorization technique for quaternionic polynomials. A substantial part of the talk is elementary and is accessible for high school students.

**Date :** Wednesday, April 26, 2023

**Time:** 13:30

**Place:** TB 130, Boğaziçi University