

# Boğaziçi Math Seminar

## **Non-overlapping domain decomposition methods for coupling finite and boundary elements in the case of the Helmholtz equation**

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**Abstract:**

In this talk, we present a non-overlapping domain decomposition method for solving the Helmholtz equation. We begin by describing this method, highlighting its suitability for High Performance Computing. We then address the challenges related to the convergence of these methods corresponding in particular to the choice of the transmission conditions as well as the choice of local approximation techniques in each subdomain. Additionally, we will discuss how to couple finite and boundary element methods in the case of non-homogeneous scattering problems. Finally, the problem related to the so-called cross points is discussed in the context of nodal finite element method. Several numerical tests will also be presented to validate these algorithms.

**Date :** Wednesday, January 8, 2025

**Time:** 13:30

**Place:** TB 130, Boğaziçi University