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# SEMINARIO DE ANÁLISIS NUMÉRICO Y MODELACIÓN MATEMÁTICA

GIMNAP-Departamento de Matemática, UBB  
Centro de Investigación en Ingeniería Matemática (CI<sup>2</sup>MA), UDEC

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*Expositor:*

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*Título de la Charla:*

***A wirebasket preconditioner for the mortar  
boundary element method***

**Fecha y Hora:**

**Martes 09 de Junio de 2015, 15:30 Horas.**

**Lugar:**

**Sala Seminario, Facultad de Ciencias**

**Universidad del Bío-Bío.**

## **Resumen**

We present and analyze a preconditioner of the additive Schwarz type for the mortar boundary element method. As a basic splitting, on each subdomain we separate the degrees of freedom related to its boundary from the inner degrees of freedom. The corresponding wirebasket-type space decomposition is stable up to logarithmic terms. For the blocks that correspond to the inner degrees of freedom standard preconditioners for the hypersingular integral operator on open boundaries can be used. For the boundary and interface parts as well as the Lagrangian multiplier space, simple diagonal preconditioners are optimal. Our technique applies to quasi-uniform and non-uniform meshes of shape-regular elements. Numerical experiments on triangular and quadrilateral meshes confirm theoretical bounds for condition and MINRES iteration numbers.