

New perspectives offered by overlaps to design transparent boundary conditions in waveguides

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In this talk, I will present new transparent boundary conditions for the time-harmonic diffraction problem in acoustic or elastic waveguides. These new conditions use the natural modal decomposition in the waveguide and are said "with overlap", by analogy with domain decomposition methods. Among their main advantages, they can be implemented in general anisotropic waveguides, for which usual Dirichlet to Neumann maps are not available. Moreover, the traditional benefit of the overlap for iterative resolution is obtained, independently of the size of the overlap.