"On the solvability of linear second order elliptic equations with generalized Wentzell boundary conditions".

Abstract.

In the talk the problem

$$Pu = f \quad \text{in } \Omega, \qquad Bu = g \quad \text{on } M = \partial\Omega$$

will be considered, where P is an above elliptic operator in a bounded domain $\Omega \subset \mathbb{R}^{n+1}$ with a smooth boundary M, and B is a second order differential operator

$$B = \partial_i \rho(x) b^{ij}(x) \partial_j u + b^{0j}(x) \partial_j u + \rho(x) b(x) \partial_z u, \quad 1 \leq i,\ j \leq n,$$

with $\partial_j = \partial/\partial x_j$, $(x_1, \ldots, x_n, z)$ a normal coordinate system in a tubular neighborhood Γ of M. We discuss the solvability properties of the problem in the cases:

1) $b(x) \geq 0$, $b^{ij}(x)\xi_i\xi_j \geq 0$, $\rho > 0$, on $T^*(M)$, (Wentzell condition),

2) the same functions b and b^{ij}, but $\rho \in C^\infty(M)$ and the function ρ changes its sign in a submanifold μ of codimension 1 in M (have never been studied).