

**Meeting:** 1004, Bowling Green, Kentucky, SS 12A, Special Session on Partial Differential Equations and Their Applications

1004-35-160      **Kaj Nyström\*** ([kaj.nystrom@math.umu.se](mailto:kaj.nystrom@math.umu.se)), Department of Mathematics, Umeå University, 90187 Umeå, Sweden. *Boundary Value Problems and Duality Between  $L^p$  Dirichlet and Regularity Problems for Second order Parabolic Systems in Non-cylindrical Domains.*

In this paper we prove a number of results for general second order, symmetric, real valued constant coefficient systems satisfying an ellipticity condition in a class of time-varying, non-smooth infinite cylinders

$$\Omega = \{(x_0, x, t) \in \mathbf{R} \times \mathbf{R}^{n-1} \times \mathbf{R} : x_0 > A(x, t)\}.$$

In particular we prove a general structural theorem (duality theorem between Dirichlet and regularity problems) as well as solvability of Dirichlet, Neumann and regularity type problems with data in  $L^p$  and  $L^p_{1,1/2}$  for  $p \in (2 - \epsilon, 2 + \epsilon)$ . (Received January 24, 2005)