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**Continuous dependence on the boundary parameter of the harmonic equation in unbounded region.** (Chinese. English summary) Zbl 07448408

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Summary: Based on the spatial decay of the harmonic equation, the structural stability of the equations in three different semi-infinite cylinder regions is considered, in which the Robin boundary condition is applied on the side of the cylinder. By using the differential inequality technique, we derive a priori bounds of solution and obtain a first order differential inequality of auxiliary function. It is not only proved that the solution of harmonic equation depends on the boundary parameters continuously, but also proved that the solution decays exponentially with distance (distance from the finite end of the cylinder).

**MSC:**

35B30 Dependence of solutions to PDEs on initial and/or boundary data and/or on parameters of PDEs
35B35 Stability in context of PDEs
35J15 Second-order elliptic equations

**Keywords:**

harmonic equation; spatial decay; continuous dependence; differential inequality technique

**Full Text:** DOI