1016-42-87 **Svitlana Mayboroda*** (svitlana@math.ohio-state.edu), Department of Mathematics, The Ohio State University, 231 W 18th Avenue, Columbus, OH 43210, and **Steve Hofmann** (hofmann@math.missouri.edu), Department of Mathematics, University of Missouri, Columbia, MO 65211. *Hardy and BMO spaces associated to divergence form elliptic operators.*

Consider the second order divergence form elliptic operator $L$ with complex bounded coefficients. In general, the operators related to it (such as Riesz transform or square function) lie beyond the scope of Calderón-Zygmund theory. They need not be bounded in classical Hardy and even some $L^p$ spaces.

In this work we develop a theory of Hardy and BMO spaces associated to $L$, which includes, in particular, molecular decomposition, duality of Hardy and BMO spaces, John-Nirenberg inequality, and allows to handle aforementioned operators. (Received February 02, 2006)