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Seyfi Turkelli* (turkelli@math.uga.edu), The Department of Mathematics, University of Georgia, Athens, GA 30602. *Cohomology of Bianchi groups with coefficients in $Sym^n(\mathbb{C}^2)$.*

Let $M_{n,m} = Sym^n(\mathbb{C}^2) \otimes Sym^m(\mathbb{C}^2)$. Bianchi groups are groups of the form $PSL_2(O)$ where O is the ring of integers of an imaginary quadratic field. A fundamental problem in the study of Bianchi modular forms, which are the modular forms for GL_2 over an imaginary quadratic field, is to compute the cohomology groups $H^1(PSL_2(O), M_{n,n})$. In this talk, as the first step towards computing $H^1(PSL_2(O), M_{n,n})$, we will compute the cohomology groups $H^1(PSL_2(O), M_{n,0})$ for the ring of integers O of certain imaginary quadratic fields. (Received September 01, 2010)