1044-47-109   **Zhijian Wu***, Department of Mathematics, The University of Alabama, Tuscaloosa, AL 35487. *Clifford analysis, Hardy space and compensated compactness.*

One of the most important ideas for using Clifford algebras in harmonic analysis is to extend a function of n real variables monogenically (holomorphically if $n = 1$) to a function of $n + 1$ real variables with values in a complex Clifford algebra and to use the power of Clifford analysis and the associated function theory. A great amount of work has been done by many authors along these lines. In this talk, by using Clifford analysis, we reveal two other factorizations for functions in the Hardy space H^1. We build links between our results, the result of commmptators on L^p and the div–curl result about the compensated compactness. Applications on the regularity of certain nonlinear quantities in PDE are also indicated. We will also discuss some open questions. (Received August 25, 2008)