1047-14-82   **Mohan N Kumar*** (`kumar@wustl.edu`), Campus Box 1146, Washington University, One Brookings Drive, Saint Louis, MO 63130. *Arithmetically Cohen-Macaulay bundles on hypersurfaces.*

The talk is based on some joint work with A. P.Rao and G. V. Ravindra. The relevant preprints are available at `xxx.arXiv.org/abs/math.AG/0507161` and `arXiv:math/0611620`. The first appeared in Commentari Math. Helv and the second in IMRN.

A vector bundle on a polarized projective variety (X, L) is called Arithmetically Cohen-Macaulay if all its middle cohomologies in all twists by powers of L vanish. A famous criterion of G. Horrocks states that a vector bundle on projective space is a direct sum of line bundles if and only if it is arithmetically Cohen-Macaulay (with respect to the usual polarization). It is well known that this criterion fails for other varieties, in particular for hypersurfaces in projective spaces. In my talk I will discuss the following results proved in the above articles. Any rank two arithmetically Cohen-Macaulay vector bundle on a general hypersurface of degree at least three in $\mathbb{P}^5$ or on a general hypersurface of degree at least six in $\mathbb{P}^4$ must be split. (Received January 17, 2009)

1