1018-13-100 **Adam Van Tuyl*** (avantuyl@sleet.lakeheadu.ca), Dept. of Mathematical Sciences, Lakehead University, 955 Oliver Road, Thunder Bay, ON P7B 5E1, Canada, and **Elena Guardo** (guardo@dmi.unict.it), University of Catania. *Classifying ACM sets of points in multiprojective spaces.* Preliminary report.

Let $R = k[x_0, \ldots, x_n]$ with k an algebraically closed field of characteristic zero be the coordinate ring of $\mathbb{P}^n$. If $\mathbb{X}$ is a finite set of points in $\mathbb{P}^n$, then it is well known that $\mathbb{X}$ is always arithmetically Cohen-Macaulay (ACM), that is, the associated coordinate ring $R/I_{\mathbb{X}}$ is always Cohen-Macaulay. However, if $\mathbb{X}$ is a finite set of points in a multiprojective space $\mathbb{P}^{n_1} \times \cdots \times \mathbb{P}^{n_r}$, then $\mathbb{X}$ may or may not be ACM. In this talk I will discuss the problem of trying to find a classification of ACM sets of points in multiprojective spaces. I will begin by discussing the case of finite sets of points in $\mathbb{P}^1 \times \mathbb{P}^1$. In this situation, there are several classifications of ACM sets of points. I will then show through several examples that these classifications do not extend to a classification of ACM sets of points in a general multiprojective space. This talk is based upon a current project with Elena Guardo. (Received March 01, 2006)