1035-14-1828 **GianMario Besana*** (gbesana@depaul.edu), DePaul University, 1E Jackson, Chicago, IL 60604, **Marina Bertolini** (marina.bertolini@unimi.it), Dipartimento di Matematica, Via Saldini 50, Milano, Italy, and **Cristina Turrini** (turrini@mat.unimi.it), Dipartimento di Matematica, Via Saldini 50, 23100 Milano, Italy. *On a class of reducible determinantal varieties arising in computer vision.* Preliminary report.

A classical problem in computer vision is reconstruction. Given a series of images (projections) of a three-dimensional scene, with a number of corresponding image points identified on the images, one tries to reconstruct (up to projective equivalence) the position of the chosen group of points and of the cameras (centers of projections). When the chosen points are not static but are allowed to move, projections from higher dimensional projective spaces are involved. A configuration of points is said to be critical for a set of cameras if there exists a non-projectively equivalent configuration of cameras and points giving rise to projectively equivalent images, and thus preventing reconstruction. Loci of critical configurations can be described by determinantal varieties. This talk presents the case of three-dimensional configurations of points moving along straight lines with constant velocities, giving rise to reducible determinantal varieties in 4 dimensional projective space consisting of planes, three-dimensional quadrics and a smooth Bordiga surface. A general set up for critical loci is also described, in which critical loci and their conjugate are naturally embedded in product spaces. (Received September 20, 2007)