

1018-14-217

David Eisenbud* (de@msri.org), 1336 Summit Rd, Berkeley, CA 94708. *The Fibers of a Rational Map*. Preliminary report.

A rational map of varieties is a densely defined morphism, such as the "quadratic transformation" of the projective plane defined by $(x,y,z) \rightarrow (yz, xz, xy)$. There are at least two different notions of the fiber of such a map: the closure of the preimage in the set where the map is well-defined, or the fiber in the sense of correspondences.

When the source variety is a projective space, such a rational map is nothing more than a vector space of homogeneous polynomials, all of the same degree. Both sorts of fibers are then easy to describe algebraically. Both sorts of fibers are connected with syzygies. I'll explain these ideas and present some new results on when the two sorts of fibers coincide. This is a very preliminary report of joint work with Bernd Ulrich, inspired by a paper of Aron Simis. (Received March 07, 2006)