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**Marc Chardin\*** ([chardin@math.jussieu.fr](mailto:chardin@math.jussieu.fr)), Institut de mathématiques, UPMC, 4, place Jussieu, F-75005 Paris, France. *Torsion of the symmetric algebra and images of rational maps.*

In this lecture, a way of computing the image of a rational map using knowledge on the resolution of the symmetric algebra will be presented. In this setting, the method was initiated by Jean-Pierre Jouanolou, and further developed by him, by Laurent Busé and by myself. The origin of this method is the work of people in Geometric Modeling on this question, motivated by a simple question : how to represent the intersection of two surfaces parametrized by rational functions ? Their approach was first put on firm mathematical bases by David Cox and collaborators. The key point in this approach is to control the torsion in the symmetric algebra, which also has other interesting applications. The results I will present are joint work with Laurent Busé, Jean-Pierre Jouanolou and Aron Simis. (Received August 28, 2012)