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Matt Deland* (deland@math.columbia.edu). *Moduli Spaces of Rational Curves on Hypersurfaces in Projective Space.*

Understanding the structure of moduli spaces of rational curves on varieties is a subtle and often difficult project. Even for the case of a smooth Fano hypersurface in projective space, much remains unknown. To date, studying the spaces of degree e rational curves on a general, smooth, degree d hypersurface in projective n -space involves applying Mori's bend and break argument. Unfortunately, this argument only applies in a certain numerical range of d and n . I will review what is known and then I will discuss a new argument that does not rely on "breaking" rational curves to conclude irreducibility of these moduli spaces in new degree ranges. (Received January 19, 2011)