

Geometry, Physics, and Representation Theory  
Northeastern University

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**Linear Series and Degenerations**

**Abstract**

In the 1980's, Eisenbud and Harris developed the theory of limit linear series to study the behavior of linear series on curves under degenerations. They applied their theory to prove new results on imbeddings of curves in projective spaces, on existence of Weierstrass points, and on the birational geometry of moduli spaces of curves of high genus. Since then, limit linear series have remained the primary tool in the field. However, foundational limitations have until very recently imposed some restrictions on the sorts of arguments that could be made via limit linear series. We will describe recent advances in the foundations, and survey some of the resulting applications to statements about smooth curves.