

## Algebraic Geometry Seminar

### *Non-Abelian Lefschetz Hyperplane Theorems*

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**Abstract:** Work of Lefschetz (in 1924) and Grothendieck (in SGA II) provides many relationships between properties of a smooth projective variety  $X$  and an ample divisor  $D$  in  $X$ . For example, the singular or  $\ell$ -adic cohomology of  $X$  agrees with that of  $D$  in low degree;  $X$  and  $D$  have the same Picard group if  $X$  has dimension at least 4; and  $X$  and  $D$  have the same fundamental group if  $X$  has dimension at least 3. I'll describe a general result which encompasses some of these Lefschetz hyperplane theorems and many new ones, comparing maps out of  $X$  to maps out of  $D$ . The case when the target of these maps is a moduli scheme or stack is of particular interest; for example, one may take the target to be  $M_g$ , and thus compare families of curves over  $X$  to families over  $D$ .

Wednesday, November 5 at 4:00 PM in SEO 427