Student Algebraic Geometry Seminar

Organizer(s): Andrew Critch and Andrew Dudzik

Fridays, 4:00–5:00pm, 740 Evans

Fri, Apr 6 **Jason Ferguson**, UC Berkeley

"Geometric" Properties of Schemes

Many properties of schemes are preserved under base change. However, four properties of k-schemes that are not preserved under change of the base field k are reducedness, irreducibility, integrality, and connectedness. I will give examples, then define the notion of geometrically reduced, irreducible, integral, and connected k-scheme. Finally, I will then sketch a proof that to detect geometrically reducedness (resp. irreducibility, connectedness), it suffices to base change to the perfect closure of k (resp. separable closure of k, separable closure of k). Along the way I will give some useful tricks for reducing statements about general k-schemes to finite-type k-schemes.

After the seminar, everyone is invited out for drinks and dinner with the speaker.