Topology Seminar

Kirsten Wickelgren

of Harvard University will be speaking on

H_1 of the Abel-Jacobi Map to the Compactified Jacobian gives Poincaré Duality

on November 26 at 4:30 in
MIT Room 2-131

The Picard scheme Pic^0 representing invertible sheaves can be compactified by a moduli space J-bar of rank 1, torsion-free sheaves called the compactified Jacobian. For a smooth algebraic curve X over a field k with boundary ∂X, applying H_1 to the Abel-Jacobi map $X \to \mathrm{Pic}^0(X/\partial X)$ gives the Poincaré duality isomorphism $H_1(X, Z/\ell) \to H^1_c(X, Z/\ell(1)) = H^1(X, \partial X, Z/\ell(1))$. We show the analogous result for the compactified Jacobian that applying H_1 to the Abel-Jacobi map $X/\partial X \to J$-bar gives the Poincaré duality isomorphism $H_1(X, \partial X, Z/\ell) \to H^1(X, Z/\ell(1))$. In particular, $H_1(X/\partial X \to J\text{-bar})$ is an isomorphism. This is joint work with Jesse Kass.