1129-11-494 **Dianbin Bao*** (tud53299@temple.edu), 521 Wachman Hall 1805 North Broad Street, Philadelphia, PA 19122. *Polynomial Identities between Hecke Eigenforms.*

Polynomial identities between Hecke Eigenforms can give relations between their Fourier coefficients, which often contain important arithmetic information. Polynomial identities of specific type have been studied by various authors. In this talk, we will show that, assuming Maeda's conjecture, solutions to the equation of the type $X^2 = \sum_i a_i Y_i$ in terms of Hecke eigenforms for the full modular group $SL_2(\mathbb{Z})$ are all forced by dimension considerations. Our proof uses Galois theory for the eigenvalues of the Hecke operators acting the space of cusp forms for $SL_2(\mathbb{Z})$. We will also talk about the congruence subgroup case. (Received March 21, 2017)