

BOSTON UNIVERSITY NUMBER THEORY SEMINAR

# The Sato-Tate conjecture and Nagao's conjecture

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Monday, September 24 at 4:15 pm  
111 Cummington Mall, MCS B21  
Tea and cookies in MCS 144 at 4:00 pm

**Abstract:** Nagao's conjecture relates the rank of an elliptic surface to a limit formula arising from a weighted average of fibral Frobenius traces, and it is further generalized for smooth irreducible projective surfaces by M. Hindry and A. Pacheco. We show that the Sato-Tate conjecture for abelian surfaces studied by F. Fité, K. Kedlaya, V. Rotger, A V. Sutherland implies Nagao's conjecture for certain twist families hyperelliptic curves of genus 2. Moreover, one can relate analogous discussions for higher genus  $g$  to the nonvanishing result on the symmetric power  $L$ -functions, from which analogous proof will hold for certain cases.