

# Harvard-M.I.T. Algebraic Geometry Seminar

## Effective Schottky problem

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### **Abstract:**

Schottky problem is the question of determining which abelian varieties are jacobians of Riemann surfaces. The problem was posed by Schottky in 1880s, and solved by Shiota in 1986. However, Shiota's solution is not effective in the sense that given an explicit abelian variety, one cannot decide whether it is a jacobian or not. In this talk we present a series of results yielding a decision process for solving the Schottky problem.

Using complex-analytic and algebraic geometric techniques for the moduli space of Riemann surfaces, we are able to bound the degree of the equations involved. Using recent progress on effective Nullstellensatz, we eliminate the unknowns from the KP equation in Shiota's solution, and then applying the degree bounds to the resulting differential equation yields an effective way to solve the Schottky problem.

February 12, 2002

3:00 p.m.

MIT Room 4-163

<http://www-math.mit.edu/~abuch/seminar/>