1023-14-797 **Sujeeva Wijesiri***, 367 Science and Engineering Bld., Dep. of Mathematics and Statistics, Rochester, MI 48309. *Vanishing theta nulls of algebraic curves with automorphisms.* Preliminary report.

Let $\pi\colon X_g \to X_{g_0}$ be a m-sheeted covering of Riemann surfaces of genus g and g_0, where $g_0 \geq 1$. The general goal is to find properties that X_g (or rather, the Jacobian of X_g) has, due to the existence of the covering π. This is done by the theta functions of the X_g. This is an old problem that goes back to Riemann and Jacobi. Many other mathematicians have worked on the cases of small genus and small degree, most notably Frobenius, Prym, Königsberger, Rosenhein, Göpel, among others. We will give a historical view of the problem and describe some results for small genus algebraic curves with automorphisms. (Received September 21, 2006)