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Tony Shaska* (shaska@oakland.edu), 546 SEB, Department of Mathematics and Statistics,
Rochester, MI 48309. *Vanishing theta nulls of algebraic curves.*

Let $\pi: \mathcal{X}_g \rightarrow \mathcal{X}_{g_0}$ be a m -sheeted covering of Riemann surfaces of genus g and g_0 . The goal is to find properties that \mathcal{X}_g (or rather, the Jacobian of \mathcal{X}_g) has, due to the existence of the covering π . This is an old problem that goes back to Riemann and Jacobi which is solved via the theta functions of the \mathcal{X}_g . Many other mathematicians have worked on the cases of small genus and small degree, most notably Frobenius, Prym, Königsberger, Rosenhein, Göpel, among others. The main goal of this talk is to discuss determining relations among theta-nulls in the non-hyperelliptic case for $g > 2$. The vanishing theta-nulls for hyperelliptic curves were studied by 19-th century mathematicians and are well understood. (Received June 26, 2011)