

Meeting: 1003, Atlanta, Georgia, SS 31A, AMS-SIAM Special Session on Integrable Systems and Special Functions, I

1003-35-317 **Paul F Bracken*** (bracken@panam.edu), 1201 W University Dr, Department of Mathematics,
Edinburg, TX 78541-2999. *The Generalized Weierstrass System Inducing Surfaces of Constant and
Non constant Mean Curvature in Euclidean Three Space.*

The generalized Weierstrass system is introduced and a connection between it and the two-dimensional nonlinear sigma model, which has been shown to be integrable, will be shown. An inducing prescription due to B. Konopelchenko which utilizes the solutions of the generalized Weierstrass system to construct surfaces of constant mean curvature in Euclidean three space is presented. Several results related to these systems will be discussed, in particular, symmetry group analysis of the nonlinear sigma model, which generates special function type solutions, which can be used to induce surfaces. If time permits, some additional recent results on this system for the case of nonconstant mean curvature will be presented. (Received September 09, 2004)