1096-VL-1215 **Otis C. Wright, III*** (wrighto@cedarville.edu), Department of Science and Mathematics, 251 N. Main St., Cedarville, OH 45314. *Elliptic solutions of a coupled nonlinear Schrödinger system.*

It is well-known that elliptic functions can be used to construct explicit quasiperiodic solutions of an integrable system of two coupled nonlinear Schrödinger equations, known as the Manakov equation, which arises in the dispersive propagation of waves in widely disparate applications such as optical fibers, Bose-Einstein condensates and crowd dynamics. The nonlinear partial differential equations are equivalent to the commutation of two linear differential operators, known as a Lax pair, which are used to integrate the coupled equations. Elliptic solutions arise by assuming that a certain stationary matrix operator simultaneously commutes with the two differential operators of the Lax pair. The eigenvalues of the matrix operator form a meromorphic function on a trigonal Riemann surface of genus one. In this talk it will be shown how straightforward algebra can be used to obtain not only explicit quasiperiodic solutions but also a complete description of the parameter space of solutions with real quasiperiod, together with their limiting forms and qualitative information about the internal polarization of the waveform. (Received September 13, 2013)