1056-37-1393 **Wen-Xiu Ma*** (`mawx@cas.usf.edu`), Department of Mathematics and Statistics, University of South Florida, 4202 E Fowler Avenue, Tampa, FL 33620-5700. *Component-trace identities and Hamiltonian structures of integrable couplings.*

Component-trace identities associated with matrix spectral problems will be presented and shown to be fundamental tools in establishing Hamiltonian structures of integrable couplings associated with non-semisimple Lie algebras. Applications of bi-trace identities will furnish Hamiltonian structures of dark equations including the first-order perturbation equations. (Received September 21, 2009)