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**Alex Kasman\*** ([kasmana@cofc.edu](mailto:kasmana@cofc.edu)), Department of Mathematics, College of Charleston, 66 George Street, Charleston, SC 29401. *Darboux transformations that do not preserve bispectrality.*

Bispectrality occurs when a function satisfies two different eigenvalue equations with the role of spectral and spatial variables exchanged. Its connections to integrable systems (finite dimensional and infinite dimensional, classical and quantum) and to orthogonal polynomials have been of great interest, with recent research focused on the non-commutative case. In the commutative case, one generally expects Darboux transformations to preserve the property of bispectrality, providing a tool for generating new examples from known ones. Surprisingly, this fails to be so when the eigenfunction and eigenvalues are chosen from some non-commutative algebra. This talk will include examples in which even a rational Darboux transformation of a rank one bispectral triple fails to preserve bispectrality. The talk will also review the existing results guaranteeing that bispectrality will be preserved and the open problems that remain. (Received December 17, 2015)