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Joel B. Mohler* (jbm5@lehigh.edu), Lehigh University - Mathematics Dept., 14 E. Packer Ave., Bethlehem, PA 18015. *Computing Multiple Dirichlet Series in a Rational Function Field.*

Friedberg, Hoffstein and Lieman showed how to construct two related multiple Dirichlet series from quadratic and higher-order twisted L-functions and Gauss sums. We compute these multiple Dirichlet series explicitly in the case of the rational function field. This is done by utilizing the functional equation of the L-functions and the functional equation relating the two multiple Dirichlet series. We also point out a very simple correspondence between the p-parts of these series and their sums. (Received February 21, 2007)