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Nader Motee (nam211@lehigh.edu), Mechanical Engineering & Mechanics, Lehigh University, Bethlehem,, PA 18015, and **Qiyu Sun*** (qiyu.sun@ucf.edu), Department of Mathematics, University of Central Florida, Orlando, FL 32816. *Sparsity of spatially decaying matrices.*

In this talk, we will introduce a new algebra for sparsity of spatially decaying matrices, establish Wiener's lemma for that algebra, and solve Lyapunov and Riccati equations in that algebra. (Received August 26, 2013)