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Keivan Hassani Monfared* (k1monfared@gmail.com), **Paul Horn, Franklin Kenter, Kathleen Nowak, John Sinkovic** and **Josh Tobin**. *On the Principal Permanent Rank Characteristic Sequences of Graphs.*

The principal permanent rank characteristic sequence (ppr) is a binary sequence $r_0 r_1 \dots r_n$ where $r_k = 1$ if there exists a principal square submatrix of size k with nonzero permanent and $r_k = 0$ otherwise, and $r_0 = 1$ if there is a zero diagonal entry.

The ppr sequence of a nonnegative matrix reveals a lot of information about the cycle covers of all sizes of the underlying graph. In this talk a characterization is provided for all principal permanent rank sequences obtainable by the family of nonnegative matrices as well as the family of nonnegative symmetric matrices. (Received September 09, 2015)