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Leslie Hogben, Ames, IA , and **Jillian McLeod*** (jillian.e.mcleod@uscga.edu), New London, CT 06322. *Partition Regular Matrices from a Linear Algebraic Perspective*.

In 1933 Richard Rado wrote a treatise on finite (kernel) partition regular matrices (*PR* matrices), in which he completely characterized such matrices using his famous *columns condition*. These matrices most often appear in the context of finite Ramsey theory where they can be used to reinterpret typical Ramsey-type statements such as Shur's Theorem, van der Waerden's Theorem, and the Finite Sums Theorem. Much attention has been given to the combinatorial understanding of what it means for a matrix to be *PR*. The columns condition provides an equivalent and distinctly linear algebraic interpretation, but the linear algebra of *PR* matrices appears to be less studied in the literature. In this talk I will discuss some of the linear algebraic properties of *PR* matrices along with some new results related to the oriented vertex-edge incidence matrix of a strongly connected graph- which, it turns out, is always a *PR* matrix.

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