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**Esther R Lamken\*** (lamken@caltech.edu). *The asymptotic existence of DR( $v, k, k - 1$ )-BIBDs.*

A Kirkman square with index  $\lambda$ , latinicity  $\mu$ , block size  $k$ , and  $v$  points,  $KS_k(v; \mu, \lambda)$ , is a  $t \times t$  array ( $t = \lambda(v - 1)/\mu(k - 1)$ ) defined on a  $v$ -set  $V$  such that (1) every point of  $V$  is contained in precisely  $\mu$  cells of each row and column, (2) each cell of the array is either empty or contains a  $k$ -subset of  $V$ , and (3) the collection of blocks obtained from the non-empty cells of the array is a  $(v, k, \lambda)$ -BIBD. For  $\mu = 1$ , the existence of a  $KS_k(v; \mu, \lambda)$  is equivalent to the existence of a doubly resolvable  $(v, k, \lambda)$ -BIBD. A few years ago, I established the asymptotic existence of  $KS_k(v; 1, 1)$ . In this talk, I will show that the necessary conditions are also sufficient for the asymptotic existence of  $KS_k(v; 1, k - 1)$  or DR( $v, k, k - 1$ )-BIBDs and discuss some extensions of this work. (Received September 21, 2015)