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Karen Meagher* (meagherk@uregina.ca), Department of Mathematics and Statistics,
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set partition systems.*

In 1985 Mathon and Rosa described an association schemes on the 3×3 partitions based on how partitions intersect. This can be generalized to a coherent configuration on the $\ell \times k$ partitions. This configuration arises from the action of the symmetric group $S(k\ell)$ on pairs of cosets $S(k\ell)/(S(\ell) \wr S(k))$, where $S(\ell) \wr S(k)$ is the wreath product. Moreover, this action gives a representation of $S(k\ell)$, in particular, it is the representation induced on $S(k\ell)$ from the trivial representation on $S(\ell) \wr S(k)$. Considering this representation, we can get more information about the configuration, including when it is an association scheme. The problem I am interested in is using this extra information from the representation to prove an extension of the Erdős-Ko-Rado theorem for partitions. This joint work with Chris Godsil. (Received July 27, 2007)