

Meeting: 1003, Atlanta, Georgia, SS 24A, AMS Special Session on Design Theory and Graph Theory, I

1003-05-897 **John S. Caughman**, Department of Math and Stat, Portland State University, Portland, OR 97207, and **John W. Krussel*** (krussel@clark.edu), Dept. of Math Sciences, MSC 110, 0615 SW Palatine Hill Rd., Portland, OR 97219. *Spanning tree decompositions of K_{2n} orthogonal to one-factorizations*. Preliminary report.

It has been conjectured by Brualdi and Hollingsworth that for any one-factorization of the complete graph K_{2n} there exists a decomposition of K_{2n} into spanning trees orthogonal to the one-factorization. In 2000, Krussel, Marshall, and Verrall proved that whenever n is prime of the form $8m + 7$, such a decomposition exists for the one-factorization GK_{2n} . In this talk, we prove that such a decomposition for GK_{2n} exists for all n , providing an explicit construction. We also prove such decompositions exist for the one-factorization WK_{2n} for small values of n . We conclude with some preliminary work on other spanning tree decompositions orthogonal to GK_{2n} . (Received September 30, 2004)