

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

1003-05-535 **W. D. Wallis*** (wdwallis@math.siu.edu), Department of Mathematics, Southern Illinois University, Carbondale, IL 62901-4408. *Excessive factorizations of class 2 cubic graphs*. Preliminary report.

An excessive factorization of a cubic graph is a set of four one-factors that cover all edges of the graph, no three of which form a one-factorization. A class 2 graph is a graph whose edge-chromatic number exceeds its largest degree. So a class 2 cubic graph is precisely one without a one-factorization. We are discussing cubic graphs that can be covered by four, but not by three, one-factors.

Are there any bridgeless class 2 cubic graphs that *cannot* be covered in this way? The Petersen graph is one. Are there others (apart from obvious cases, such as graphs with a Petersen component)? (Received September 20, 2004)