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*Resonance Structures and Aromaticity in Capped Carbon Nanotubes*

A fullerene is a 3-regular plane graph with only hexagonal and pentagonal faces, and models a pure carbon molecule. Nanotubes are a class of fullerenes that are cylindrical in shape and extremely useful in applications. The Clar number of a fullerene is a parameter related to its aromaticity and stability. In this talk, we partition nanotubes into two classes, those with relatively small and with relatively large Clar numbers. We describe the double bond structures, or perfect matchings, capable of forming in these two classes. This is joint work with Jack Graver (Syracuse University) and Aaron Williams (Williams College).