998-05-341   **Siemion Fajtlowicz*** (`math0@bayou.uh.edu`), Department of Mathematics, University of Houston, Houston, TX. *Independence Number as a Predictor of Stability of Fullerenes and Benzenoids.*

The stability sorting pattern of a conjecture of Graffiti presented at the DIMACS Workshop on computer-generated conjectures in November 2001 suggested that stable fullerenes tend to minimize their independence numbers. Initially, a fullerene expert had as negative reaction to this unexpected finding as to previous stability hypotheses of Graffiti, but, later the same day, he graciously informed the author about statistics which could be interpreted as supporting this independence-stability hypothesis. Soon later Larson obtained the program Fullgen from Gunnar Brinkman and eventually he presented an overwhelming statistical evidence in support of this hypothesis. It appears now that the independence number of benzenoids may be also an indicator of their stability. Unlike the case of fullerenes, there are well-developed theories of stability of benzenoids, but they are consistent with the new proposed point of view and thus by analogy they can be considered as not only a confirmation, but also a first step toward an explanation of the independence-stability hypothesis for fullerenes. I will also discuss the stability-expanding and the stability-separator hypotheses based on conjectures of Graffiti. (Received March 02, 2004)