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The Clar - Fries Mystery

Given a fullerene, the maximum number of benzene rings over all Kekule structures is the Fries number; the maximum number of pairwise disjoint benzene rings over all Kekule structures is the Clar number. Graver and Hartung constructed a fullerene family where the benzene rings giving the Clar number could not be a subset of the Fries faces. Fowler and Myrvold developed a program for computing the Clar number directly and discovered many fullerenes in which this discrepancy occurred. Comparing constructions developed for Clar chains and Fries chains by Hartung and Fenton enables us to shed light on this mystery.