Anti-Kekule number of graphs

张和平

兰州大学

Perfect matchings in graphs correspond to Kekule structures in organic molecular structure. In 2007, Vukicevic and Trinajstic introduced the concept of the anti-Kekule number to be the smallest number of edges that have to be removed from a graph such that it remains connected but without any perfect matching. In this talk we report some new progresses made on this direction, including the anti-Kekule number of (5,6)- and (4,6)-fullerenes, as weel as of general regular graphs, NP-completeness of the the anti-Kekule problem, and some close relations with matching preclusion and conditional matching preclusion proposed as measures of robustness in the event of edge failure in interconnection networks.