1037-05-161 **Matt DeVos** and **Luis Goddyn*** (goddyn@sfu.ca), Dept. of Mathematics, Simon Fraser University, Burnaby, BC V5C 1M6, Canada, and **Bojan Mohar** and **Robert Šámal**.

$(3,6)$-*Fullerenes are Spectrally Nearly Bipartite.*

A $(3,6)$-*Fullerene* is a 3-regular plane graph whose faces are triangles and hexagons. As variants of *Buckyballs*, these graphs are of interest to chemists. It was conjectured (P. Fowler, 1995) that the spectrum of any $(3,6)$-Fullerene consists of opposite real pairs $\{\pm\lambda\}$, and four exceptional eigenvalues $\{3,-1,-1,-1\}$.

We prove this conjecture by expressing every $(3,6)$-Fullerene as a *Cayley sum graph*, a variant of *Cayley graph* which was introduced by Fan Chung. Other geometrically defined families of graphs have similar spectral properties. (Received January 31, 2008)