The Preparation of Fullerenes: A Case of Interdisciplinary Research

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Interstellar molecules and particles play an important role in astronomy and astrophysics. Even though the optical and infrared absorption spectra of that kind of matter are fairly well known, the structure and chemical composition of most of its components is still puzzling. Carbon as the most abundant condensable element in space plays a major role in molecule- and dust particle formation. Our strategy to gain information on the composition of interstellar dust was to produce carbon particles in the laboratory such that the relevant astronomical absorptions are reproduced as faithfully as possible. In the course of our investigations on artificially produced graphitic soot, carried out in collaboration with Don Huffman from the University of Arizona, we discovered several absorption features which we could not explain. The celebrated discovery of C_{60} a few years later let us believe that these mysterious absorptions may be that of C_{60}. It took us a few years of work to prove and - this provided a considerable psychological barrier - to convince ourselves that this was indeed correct. In this lecture, the main steps of the discovery will be outlined and a brief account will be given highlighting the avalanche of research which followed.