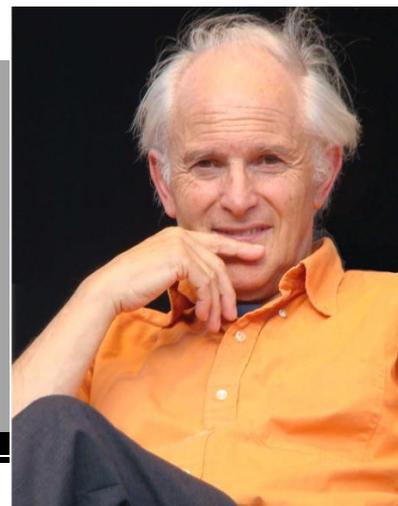


# Professor Harold Kroto

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## Carbon in Nano and Outer Space

The age-old awe that man has had for the heavens has driven almost all aspects of human culture and knowledge and resulted in technologies with generally positive, though occasionally negative effect. In fact it was only in the 16<sup>th</sup> Century, when mankind finally applied the new doubt-based evidence-dependent analytical method to the motions of the planets, that Science was born. From that moment we started to rely more on Science and an understanding of why things worked the way they do than on the “Common Sense” which is generally all that is needed to survive. Thus Science itself was born out of curiosity, not out of expedience, and it is still true today that almost all major breakthroughs are made by the openly curious who generally discover what those with more focused minds tend to overlook.

Particularly fascinating, curious, and crucial has been the role that the element carbon has played in almost every aspect of the development of our understanding of both the physical and natural sciences. One big surprise that the element had up its sleeve was the existence of C<sub>60</sub>, Buckminsterfullerene, the third well-defined form of carbon. The discovery of this molecule and its siblings (the whole family now known as the Fullerenes) was made serendipitously during laboratory experiments which attempted to explain the chemical synthesis of some unexpectedly long linear carbon chain molecules which we detected in the interstellar medium.

This is yet another example of the remarkable way in which the fascination with space has catalyzed fundamental breakthroughs in general science with major implications for innovative technological applications on Earth. In these difficult times this account provides evidence which supports the vital role that fundamental cross-disciplinary research has played in the past and will continue to play in the future in providing totally unpredictable advances of major strategic importance.

The history of scientific progress carries a serious health warning for those who think that fundamental science can be steered by bureaucratic decision-making and the story of the discovery of the third form a carbon and its key role in the birth of Nanoscience and Nanotechnology is yet another example.

## Organic Hirschmann Seminar

Thursday, April 12<sup>th</sup> at 3:30 p.m.  
Room 1361 Chemistry