Fullerenes, Science Dissemination and MultiComp

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Science dissemination is an integral part of COST Actions, and there are many motivations for active and successful dissemination approaches. Nanotechnology has a history of both excellent and awful science dissemination strategies, and I will briefly discuss some of these and their subsequent effects on the community, wider public and policy makers. One of the nanocarbon communities great science communicators, Sir Harry Kroto, recently passed away, and I will briefly describe some of his successful approaches to science dissemination and actions I was lucky enough to work with him on. In the current changing political climate, successful and active science communication is an increasingly important responsibility for all European scientists.

Nanoring-fullerene complexation: Towards tubes of nanorings

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In 2008, a new ring-shaped family of π-conjugated carbon molecules was synthesized: Cycloparaphenylenes (CPPs) [1]. This family of molecules is particularly noteworthy through analogy to other π-conjugated material systems. Structurally they represent the shortest possible segment of (n,n) armchair carbon nanotubes (CNTs).

Just as it is possible to fill carbon nanotubes with fullerene molecules (so called 'peapods'), by analogy 1:1 complexes of fullerenes with CPPs have been reported, highlighting a high size selectivity of the CPP to the specific fullerene [2]. In this report we would like to expand the scope of this theme by investigating the interaction of CPP with azafullerenes $(C_{59}N)_2$. The azafullerene dimer [3] bears the challenge that it allows different binding modes for the CPP. We have modeled the interaction (Figure 1) and found that two CPPs can bind to an azafullerene dimer forming a stable complex. Experimental colleagues in Germany and Greece have since confirmed this complexation by UV and fluorescence spectroscopy [4]. This is a very useful first step towards the templating of CPP polymerization, creating "poly-CPP-nanotubes".

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