

# Making Structurally Uniform Nanocarbons and a New Form of Carbon

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Nanocarbons conduct electricity, absorb and emit light, and exhibit interesting magnetic properties. Spherical fullerene C<sub>60</sub>, cylindrical carbon nanotubes and sheet-like graphenes are representative forms of nanocarbons, and theoretical simulations have predicted a number of exotic three-dimensional nanocarbon structures. At present, however, synthetic routes to nanocarbons mainly lead to mixtures of molecules with a range of different structures and properties, which cannot be easily separated or refined into pure forms. Some researchers believe it is impossible to synthesise these materials in a precise manner. Obtaining “pure” nanocarbons is a great challenge in the field of nanocarbon science, and the construction of structurally uniform nanocarbons – ideally as single molecules – is crucial for the development of functional materials in nanotechnology, electronics, optics, and biomedical applications. In this talk, our organic chemistry approach toward making structurally uniform nanocarbons and a new form of carbon will be presented.