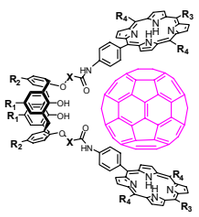
New Bis-porphyrin Hosts for Fullerene Binding

Peter D.W. Boyd

Department of Chemistry
University of Auckland,
Auckland, New Zealand
Email: pdw.boyd@auckland.ac.nz

Calix[4]arene linked bis porphyrin hosts, **1**, have been designed as hosts for fullerenes. Association constants for fullerenes varies with porphyrin substituent, solvent and fullerene type.[1] The intrinsic strength of binding due to the porphyrin-fullerene interaction is enhanced by additional porphyrin C-H..fullerene interactions.



1

New hosts based on modification of the porphyrin at the 15 position, R_3, and the upper rim of the calix[4]arene linker, R_1 and R_2 , have been synthesized and fullerene binding properties investigated. Attachment of singly substituted p-phenyl groups in the 15 position have given hosts of comparable binding strength to the 3,5 t-butylphenyl derivative. This has allowed the attachment of redox active groups, X, such as ferrocenes and porphyrins at this position. These hosts then assemble with fullerenes and fullerene derivatives to give triads and tetrads.

1. A. Hosseini, S.Taylor, G. Accorsi, N. Armaroli, C.A. Reed and P.D.W. Boyd *J. Am.Chem .Soc.* **2006**, *128,* 15903-15913.