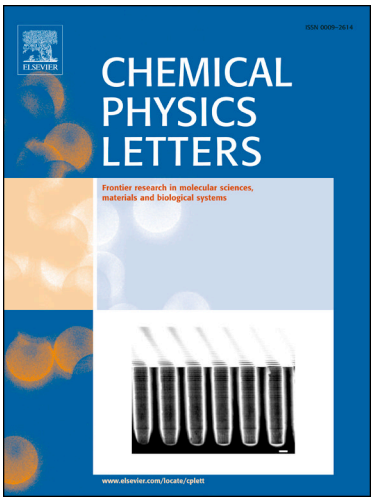


Research paper

# Distance Numbers and Wiener Indices of IPR Fullerenes with Formula $C_{10(n-2)}$ ($n \geq 8$) in Analytical Forms

Tapanendu Ghosh, Sukanya Mondal, Swapnadeep Mondal, Bholanath Mandal

PII: S0009-2614(18)30324-5
DOI: https://doi.org/10.1016/j.cplett.2018.04.039
Reference: CPLETT 35595

To appear in: *Chemical Physics Letters*

Received Date: 4 March 2018
Accepted Date: 16 April 2018

Please cite this article as: T. Ghosh, S. Mondal, S. Mondal, B. Mandal, Distance Numbers and Wiener Indices of IPR Fullerenes with Formula $C_{10(n-2)}$ ($n \geq 8$) in Analytical Forms, *Chemical Physics Letters* (2018), doi: https://doi.org/10.1016/j.cplett.2018.04.039

# Distance Numbers and Wiener Indices of IPR Fullerenes with Formula $C_{10(n-2)}$ ($n \geq 8$) in Analytical Forms

Tapanendu Ghosh, Sukanya Mondal, Swapnadeep Mondal and Bholanath Mandal*
Department of Chemistry, The University of Burdwan, Burdwan-713104, India

## Abstract

The IPR fullerenes $C_{10(n-2)}$ with $n \geq 8$ have been considered for obtaining their distance numbers and hence the Wiener indices in analytical forms for both even and odd *n*. The distance numbers along with their patterns have been found to give the number of $^{13}C$ NMR signals with their respective intensity ratios. Logarithms of Wiener indices have been found to correlate well with the band (HOMO-LUMO) gaps and resonance energies of the respective fullerenes.

**Keywords:**
Topological invariants; Wiener indices; Distance number; $^{13}C$ NMR; IPR fullerenes

*Author for correspondence
Tele: +919475596564
Fax: +91-342-2567938/2530452
Email: bmandal_05@yahoo.com; bmandal@chem.buruniv.ac.in