

Synthesis and characterization of highly photoresponsive fullereryl dyads with a close chromophore antenna–C₆₀ contact and effective photodynamic potential

Long Y. Chiang,*^a Prashant A. Padmawar,^a Joy E. Rogers–Haley,^b Grace So,^c Taizoon Canteenwala,^a Sammaiah Thota,^a Loon-Seng Tan,^b Kenneth Pritzker,^c Ying-Ying Huang,^{d,e,f} Sulbha K Sharma,^{d,e} Divya Balachand Kurup,^{d,e} Michael R. Hamblin,^{d,e,g} Brian Wilson^e and Augustine Urbas^b

^a Department of Chemistry, University of Massachusetts Lowell, Lowell, MA 01854, USA. E-mail: Long_Chiang@uml.edu; Fax: (978)-934-3013; Tel: (978)-934-3663

^b AFRL/RX, Air Force Research Laboratory, Wright-Patterson Air Force Base, Dayton, OH 45433, USA. E-mail: Loon-Seng.Tan@wpafb.af.mil; Fax: (937)-255-9157; Tel: (937)-255-9153

^c Department of Pathology and Laboratory Medicine, Mount Sinai Hospital and University of Toronto, Toronto, Canada, E-mail: kpritzker@yorkmp.com; Fax: (416)-486-9460; Tel: (647)-221-6909

^d Wellman Center for Photomedicine, Massachusetts General Hospital, Boston, MA 02114, USA, E-mail: hamblin@helix.mgh.harvard.edu; Fax: (617)-726-8566; Tel: (617)-726-6182

^e Department of Dermatology, Harvard Medical School, Boston, MA 02114, USA, E-mail: wilson@uhnres.utoronto.ca; Fax: (416)-946-6529; Tel: (416)-946-2952

^f Aesthetic and Plastic Center of Guangxi Medical University, Nanning, P.R. China

^g Harvard–MIT Division of Health Sciences and Technology, Cambridge, MA 02139, USA

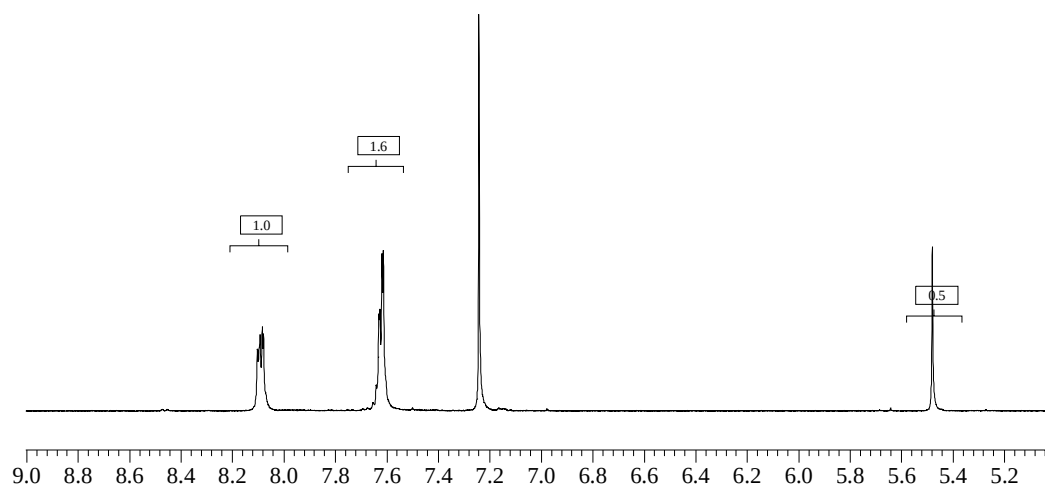


Fig. S1. ^1H NMR spectrum of $\text{C}_{60}(>\text{DCE-Ph}) \mathbf{2}$.

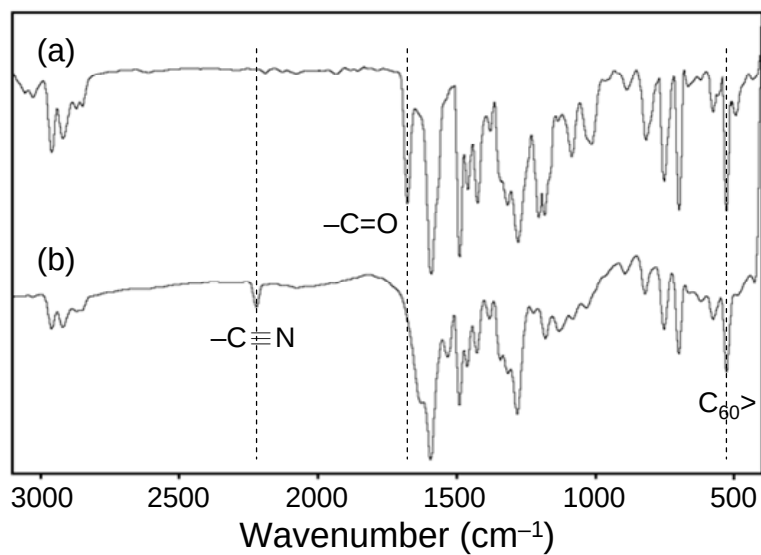


Fig. S2. Infrared spectra of (a) $\text{C}_{60}(>\text{DPAF}-\text{C}_9)$ and (b) $\text{C}_{60}(>\text{CPAF}-\text{C}_9)$ showing a characteristic keto functional group change to a cyano group containing DCE.

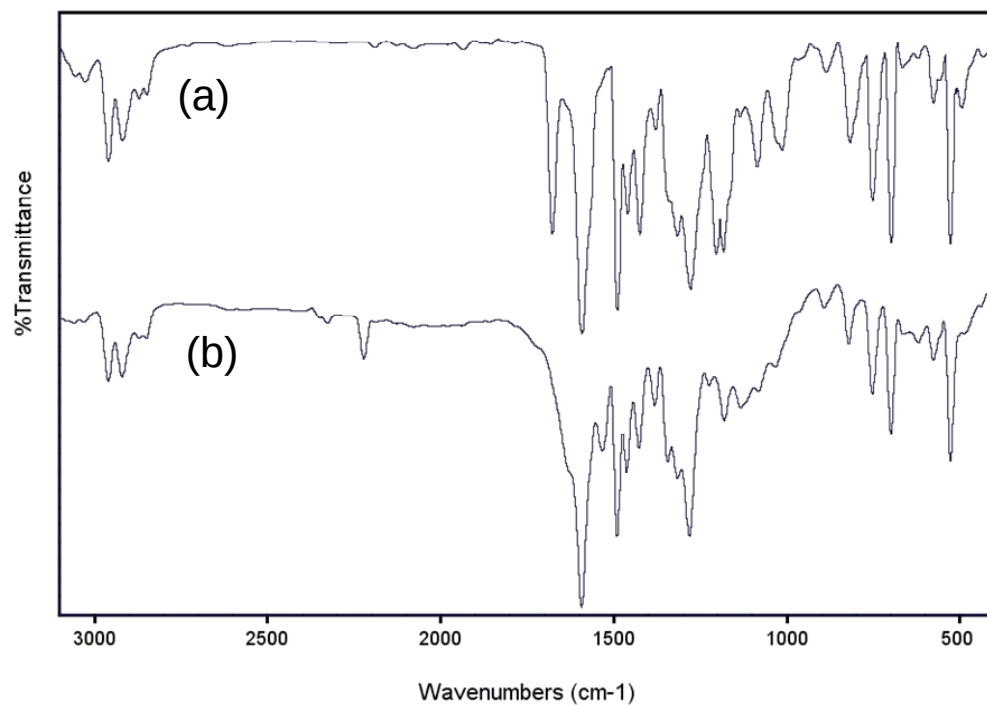


Fig. S3. Infrared spectra of (a) C₆₀(>DPAF-C₂) and (b) C₆₀(>CPAF-C₂) showing a characteristic keto functional group change to a cyano group containing DCE for comparison.

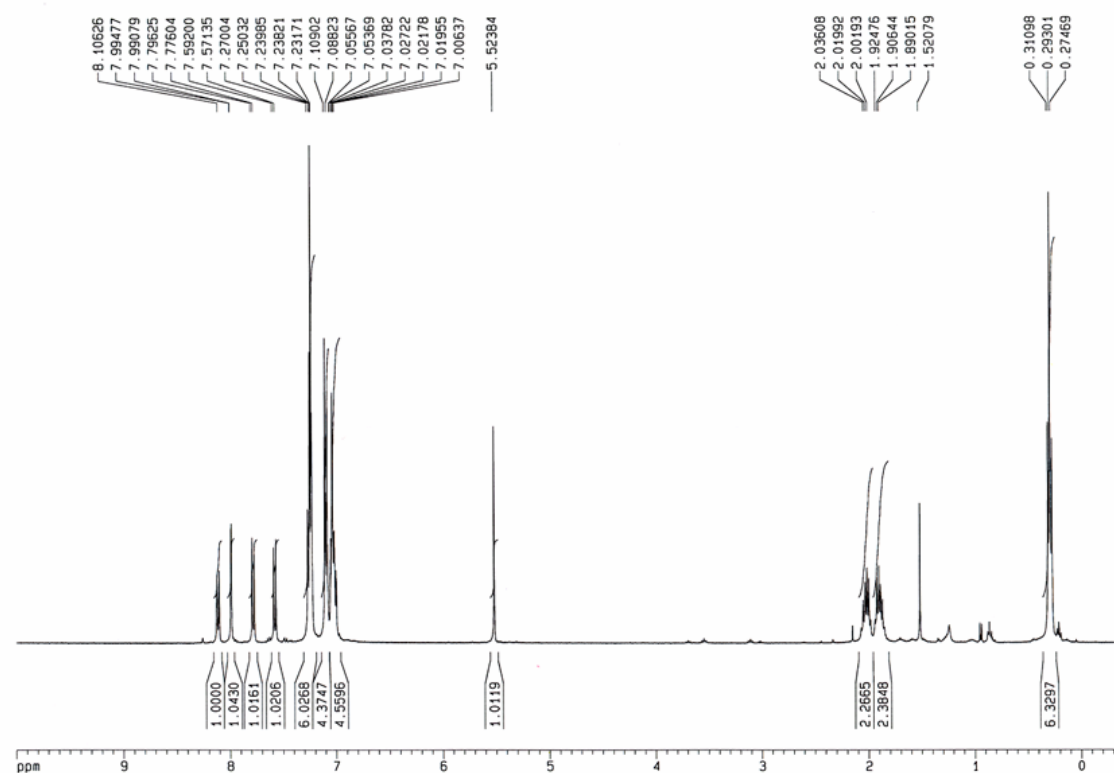


Fig. S4. ¹H NMR spectrum of C₆₀(>CPAF-C₂).

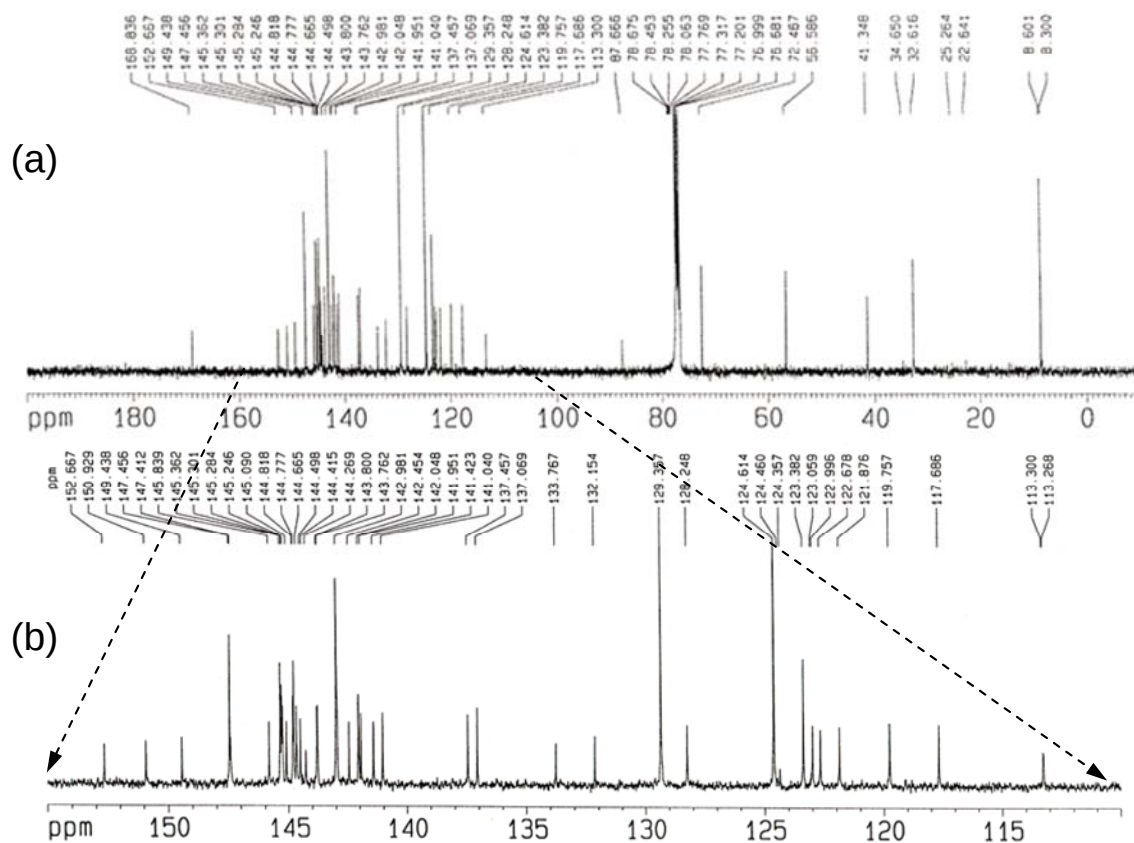


Fig. S5. ^{13}C NMR spectra of (a) $\text{C}_{60}(>\text{CPAF-C}_2)$ and (b) expanded aromatic carbon peaks region.

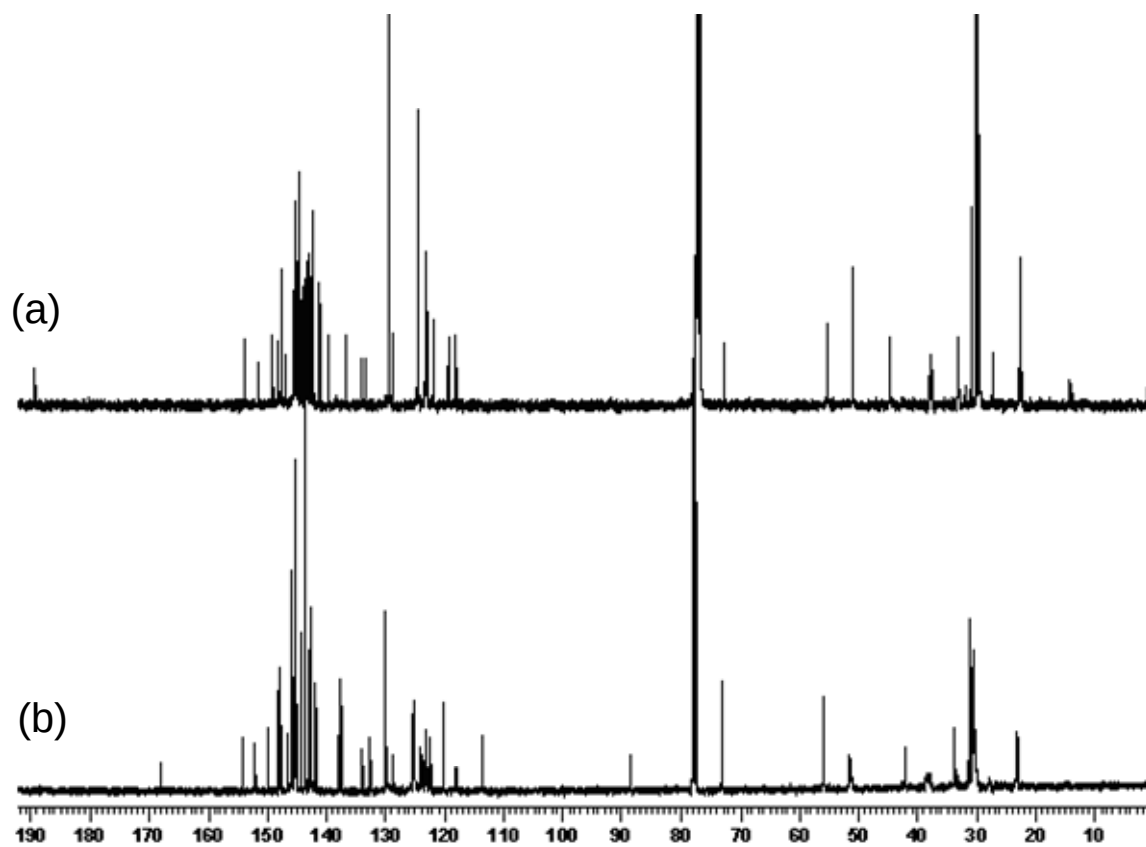


Fig. S6. ^{13}C NMR spectra of (a) $\text{C}_{60}(>\text{DPAF-C}_9)$ 7- C_9 and (b) $\text{C}_{60}(>\text{CPAF-C}_9)$ 8- C_9 .

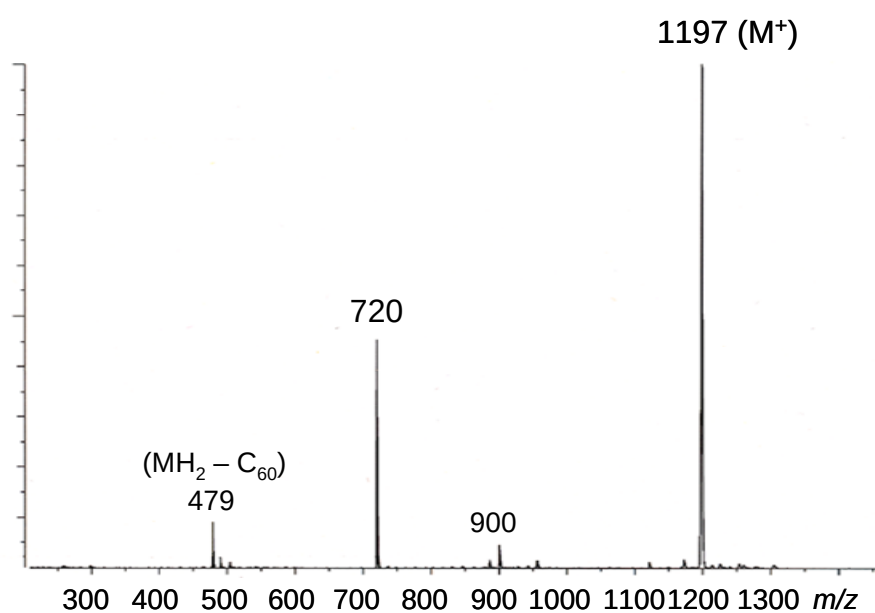


Fig. S7. Negative ion desorption chemical ionization mass spectrum (DCI-MS) of $C_{60}(>CPAF-C_2)$.