Calculation of Theoretical Dimensions

The lengths of the longest oligo(p-phenylene) arms for dendrimers and dendrimer chemical dimers were calculated using the AM1 lengths (Table S1) of the groups from the methane core out to the chain ends or next core (dimer) including the appropriate number of phenylenes (5 per repeat unit per exploded generation and 2 per repeat per standard generation) (below).

The length of the longest oligo(*p*-phenylene) arm for each species is given by:
[G3e] (g=3) radius: x + 5gy + z = 7.6 nm
[G3e] capped (g=3, g'=1) radius: x + 5gy +2g'y+ z = 8.4 nm

Table S1. AM1 functional group lengths.

functional group	**AM1 length (nm)**
core phenylene (x)	0.434
phenylene (y)	0.428
ethynyl-TiPS (z)	0.70

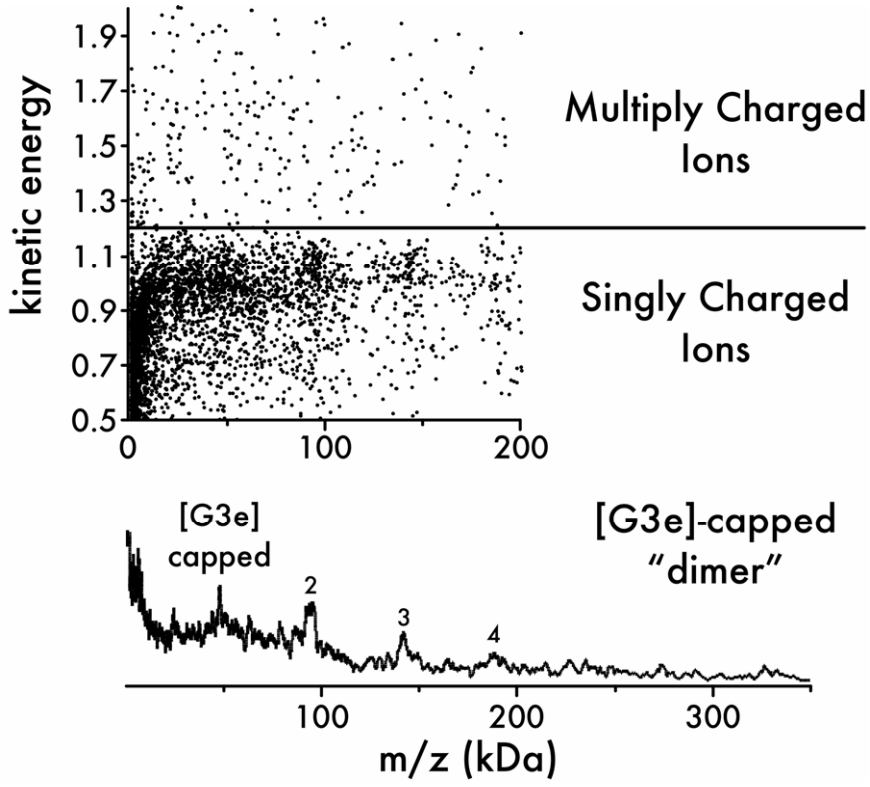

Figure S1. MALDI mass spectrum for **[G3e]capped** "dimer."