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**Penta-*Tert*-Butyl-Corannulene vs. Corannulene: Structure, Disorder, and Reactivity.** Y. Sevryugina<sup>1</sup>, E.A. Jackson<sup>2</sup>, L.T. Scott<sup>2</sup>, M.A. Petrukhina<sup>1\*</sup>, <sup>1</sup>Dept. of Chemistry, Univ. at Albany, SUNY, Albany, NY, 12222, <sup>2</sup>Dept. of Chemistry, Merkert Chemistry Center, Boston College, Chestnut Hill, MA, 02467-3860.

As part of a broad study on the reactivity of open geodesic polyaromatic hydrocarbons having curved unsaturated  $\pi$ -carbon surfaces that map onto the surface of C<sub>60</sub>-fullerene, we have accomplished the structural characterization of 1,3,5,7,9-penta-*tert*-butyl-corannulene (C<sub>40</sub>H<sub>50</sub>). Its molecular geometry and solid state packing have been compared with that of the parent bowl-shaped corannulene (C<sub>20</sub>H<sub>10</sub>). 1,3,5,7,9-Penta-*tert*-butyl-corannulene does not show  $\pi$ - $\pi$  stacking interactions and has a very loose packing in the solid state, compared to corannulene, due to peripheral crowding by the bulky *tert*-butyl groups. Difficulties in structure solution of the symmetrical C<sub>40</sub>H<sub>50</sub> bowl associated with the existence of various rotational orientations and with a statistical mixture of enantiomers will be discussed in detail. The effect of the ligand geometry and curvature on the outcome of gas phase complexation reactions of C<sub>20</sub>H<sub>10</sub> and C<sub>40</sub>H<sub>50</sub> with electrophilic volatile ruthenium(I) complexes will also be presented.

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