**SYNTHESIS OF CYCLIC ORGANIC COMPOUNDS AND METALLOCENES**

ABSTRACT

A method comprising synthesizing a cyclic organic compound via reaction of an unsubstituted or substituted cyclopentene with an unsubstituted or substituted acrylic acid in the presence of phosphoric and/or sulfonic acid reagent to make the cyclic organic compound. Also, a method of synthesizing a ligand for a transition metal, and a related substituted ligand-metal complex and catalyst, from the unsubstituted or substituted cyclopentene and unsubstituted or substituted acrylic acid. Also, the cyclic organic compound, ligand, and substituted ligand-metal complex and catalyst synthesized thereby. Also a method of polymerizing an olefin with the catalyst to give a polyolefin, and the polyolefin made thereby.

[No figure available]