What is claimed is:

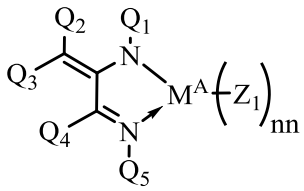
1. An olefin polymerization catalyst system comprising:

(A) a first olefin polymerization procatalyst,

(B) a second olefin polymerization procatalyst, and

(C) a chain shuttling agent,

wherein the second olefin polymerization procatalyst (B) comprises a metal-ligand complex of Formula (I):



(I), wherein:

each Z1 independently is $(C_1\text{-}C_{40})$hydrocarbon, $(C_1\text{-}C_{40})$heterohydrocarbon, $(C_1\text{-}C_{40})$hydrocarbyl, $(C_1\text{-}C_{40})$heterohydrocarbyl, $Si(R^{C1})_3$, $Ge(R^{C1})_3$, $P(R^{C1})_2$, $N(R^{C1})_2$, OR^{C1}, SR^{C1}, CN, CF_3, $R^{C1}S(O)$-, $R^{C1}S(O)_2$-, $(R^{C1})_2C$=N-, $R^{C1}C(O)O$-, $R^{C1}OC(O)$- , $R^{C1}C(O)N(R)$- , $(R^{C1})_2NC(O)$- , halogen atom, or hydrogen atom;

each R^{C1} independently is $(C_1\text{-}C_{30})$hydrocarbyl or $(C_1\text{-}C_{30})$heterohydrocarbyl;

each M^A independently is a metal of any one of Groups 3 to 6 or Groups 7 to 9 of a Periodic Table of the Elements, the metal being in a formal oxidation state of +2, +3, +4, +5, or +6;

nn is an integer of 1 or 2;

each Q^1 independently is hydrogen, $(C_1\text{-}C_{40})$hydrocarbyl, or $(C_1\text{-}C_{40})$heterohydrocarbyl;

each of Q^2, Q^3, and Q^4 independently is hydrogen, $(C_1\text{-}C_{40})$hydrocarbyl, $(C_1\text{-}C_{40})$hydrocarbylO-, $(C_1\text{-}C_{40})$hydrocarbylS-, $(C_1\text{-}C_{40})$hydrocarbylS(O)-, $(C_1\text{-}C_{40})$hydrocarbylS$(O)_2$-, $((C_1\text{-}C_{40})\text{hydrocarbyl})_2$N-, $((C_1\text{-}C_{40})\text{hydrocarbyl})_2$P-, or $(C_1\text{-}C_{40})$heterohydrocarbyl;

each Q^5 independently is $(C_1\text{-}C_{40})$hydrocarbyl or $(C_1\text{-}C_{40})$heterohydrocarbyl;

wherein Q^1 and Q^2, Q^2 and Q^3, Q^3 and Q^4, and Q^4 and Q^5 optionally are taken together to form a $(C_1\text{-}C_{40})$hydrocarbylene or $(C_1\text{-}C_{40})$heterohydrocarbylene, or any three or four of Q^1 to Q^5 optionally are taken together to form a respective trivalent or tetravalent analog of $(C_1\text{-}C_{40})$hydrocarbylene or $(C_1\text{-}C_{40})$heterohydrocarbylene, and the remainder of Q^1 to Q^5, are as defined above;

each of the hydrocarbyl, heterohydrocarbyl, $Si(R^{C1})_3$, $Ge(R^{C1})_3$, $P(R^{C1})_2$, $N(R^{C1})_2$, OR^{C1}, SR^{C1}, $R^{C1}S(O)$-, $R^{C1}S(O)_2$-, $(R^{C1})2C=N$-, $R^{C1}C(O)O$-, $R^{C1}OC(O)$-, $R^{C1}C(O)N(R)$-, $(R^{C1})_2NC(O)$-, hydrocarbylene, and heterohydrocarbylene groups independently is unsubstituted or substituted with one or more R^S substituents; and

each R^S independently is a halogen atom, polyfluoro substitution, perfluoro substitution, unsubstituted $(C_1\text{-}C_{18})$alkyl, F_3C-, FCH_2O-, F_2HCO-, F_3CO-, oxo (i.e., =O), R_3Si-, R_3Ge-, RO-, RS-, RS(O)-, $RS(O)_2$-, R_2P-, R_2N-, $R_2C=N$-, NC-, RC(O)O-, ROC(O)- , RC(O)N(R)- , or $R_2NC(O)$- , or two of the R^S are taken together to form an unsubstituted $(C_1\text{-}C_{18})$alkylene, wherein each R independently is an unsubstituted $(C_1\text{-}C_{18})$alkyl; and

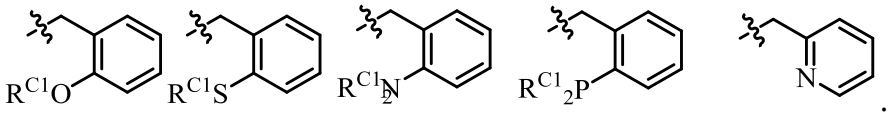
optionally, R^{C1} or R^S may have an additional interaction with M^A.

2. The catalyst system of claim 1, further comprising (D) an activator.

3. The catalyst system of any of the preceding claims, wherein M^A is scandium.

4. The catalyst system of any of the preceding claims, wherein Z1 is $(C_1\text{-}C_{40})$hydrocarbyl, $(C_1\text{-}C_{40})$heterohydrocarbyl, $Si(R^{C1})_3$, or a hydrido group.

5. The catalyst system of any of the preceding claims, wherein Z1 is selected from the group consisting of:



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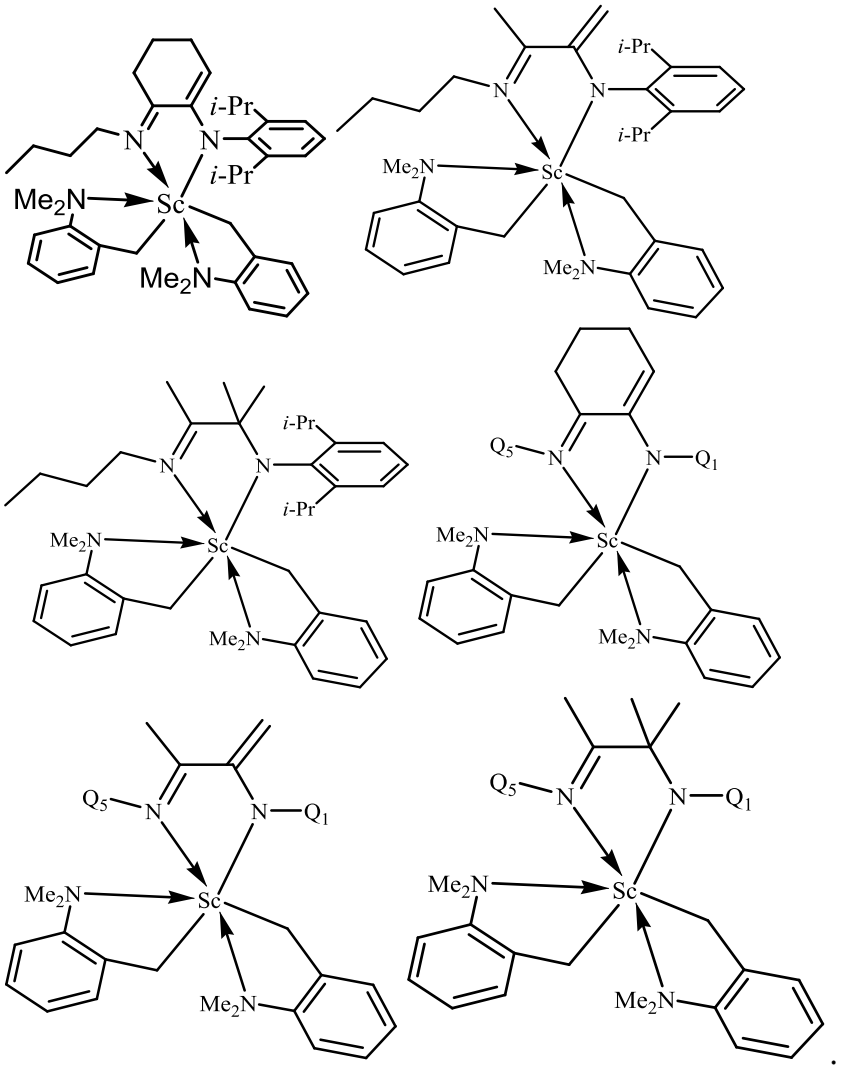
6. The catalyst system of any of the preceding claims, wherein the metal-ligand complex of Formula (I) has the following structure:



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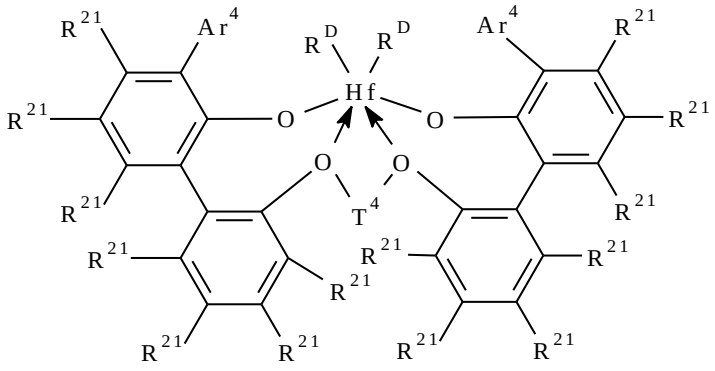
7. The catalyst system of any of the preceding claims, wherein said metal-ligand complex of Formula (III) has the following structure:



, wherein:

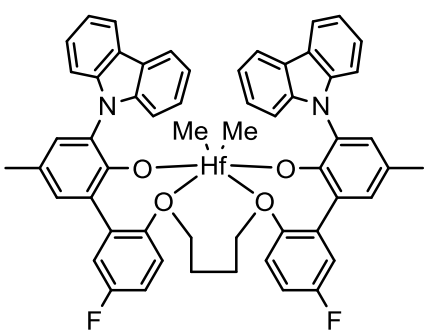
Ar^4 independently at each occurrence is C_{6-20} aryl or inertly substituted derivatives thereof, especially 3,5-di(isopropyl)phenyl, 3,5-di(isobutyl)phenyl, dibenzo-1H-pyrrole-1-yl, naphthyl, anthracen-5-yl, 1,2,3,4,6,7,8,9-octahydroanthracen-5-yl;

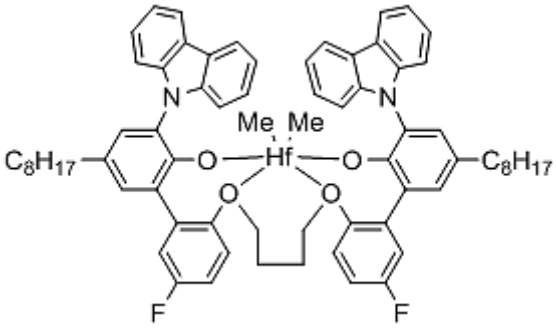
T^4 independently at each occurrence is a propylene-1,3-diyl group, a bis(alkylene)cyclohexan-1,2-diyl group, or an inertly substituted derivative thereof substituted with from 1 to 5 alkyl, aryl or aralkyl substituents having up to 20 carbons each;

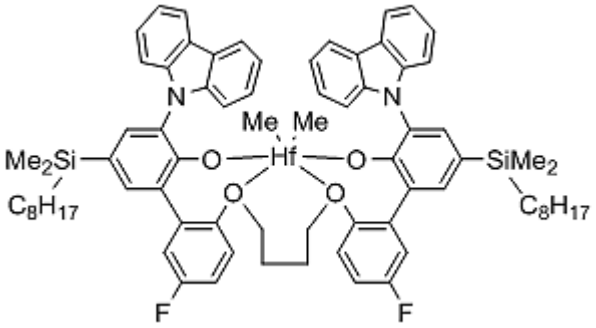
R^{21} independently at each occurrence is hydrogen, halo, hydrocarbyl, trihydrocarbylsilyl, trihydrocarbylsilylhydrocarbyl, alkoxy or amino of up to 50 atoms not counting hydrogen; and

R^D, independently at each occurrence is halo or a hydrocarbyl or trihydrocarbylsilyl group of up to 20 atoms not counting hydrogen, or 2 R^D groups together are a divalent hydrocarbylene, hydrocarbadiyl or trihydrocarbylsilyl group of up to 40 atoms not counting hydrogen.

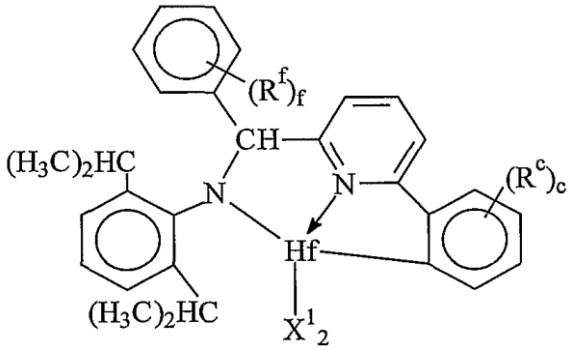
8. The catalyst system of any of the preceding claims, wherein said metal-ligand complex of Formula (III) is selected from the group consisting of:







9. The catalyst system of any of claims 1-6, wherein the first olefin polymerization procatalyst (A) has the following structure:

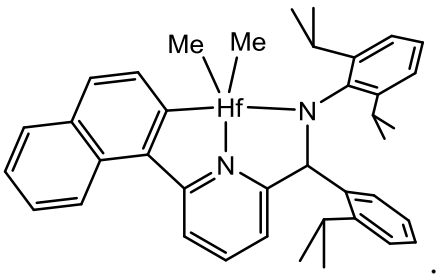


wherein X^1 at each occurrence is halide, N,N-dimethylamido, or C_{1-4} alkyl, and preferably at each occurrence X^1 is methyl;

R^f independently at each occurrence is hydrogen, halogen, C1-20 alkyl, or C6-20 aryl, or two adjacent R^f groups are joined together thereby forming a ring, and f is 1-5; and

R^c independently at each occurrence is hydrogen, halogen, C_{1-20} alkyl, or C_{6-20} aryl, or two adjacent R^c groups are joined together thereby forming a ring, and c is 1-5.

10. The catalyst system of any of claims 1-9, wherein the first olefin polymerization procatalyst (A) has the following structure:


Me
Me
Hf
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