

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization

International Bureau

(43) International Publication Date
02 December 2021 (02.12.2021)



(10) International Publication Number
WO 2021/243222 A1

- (51) **International Patent Classification:**
C08F 210/16 (2006.01) *C08F 4/659* (2006.01)
- (21) **International Application Number:**
PCT/US2021/034878
- (22) **International Filing Date:**
28 May 2021 (28.05.2021)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
63/031,638 29 May 2020 (29.05.2020) US
63/143,333 29 January 2021 (29.01.2021) US
- (71) **Applicant: DOW GLOBAL TECHNOLOGIES LLC**
[US/US]; 2211 H.H. Dow Way, Midland, Michigan 48674 (US).

DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, IT, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.

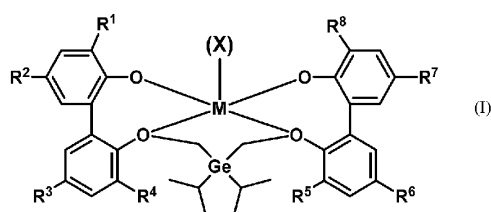
- (84) **Designated States** (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

- (72) **Inventors: BAILLIE, Rhett A.**; c/o Dow Global Technologies LLC, 230 Abner Jackson Parkway, Lake Jackson, Texas 77566 (US). **DELORBE, Johnathan E.**; c/o Dow Global Technologies LLC, 230 Abner Jackson Parkway, Lake Jackson, Texas 77566 (US). **CAMELIO, Andrew M.**; c/o Dow Global Technologies LLC, 633 Washington Street, 1776 Building, Midland, Michigan 48667 (US). **DO, Hien Q.**; c/o Dow Global Technologies LLC, 230 Abner Jackson Parkway, Lake Jackson, Texas 77566 (US). **FONTAINE, Philip P.**; c/o Dow Global Technologies LLC, 230 Abner Jackson Parkway, Lake Jackson, Texas 77566 (US). **PEARSON, David M.**; c/o Dow Global Technologies LLC, 230 Abner Jackson Parkway, Lake Jackson, Texas 77566 (US). **ROSEN, Mari S.**; c/o Dow Global Technologies LLC, 230 Abner Jackson Parkway, Lake Jackson, Texas 77566 (US). **BAILEY, Brad C.**; c/o Dow Global Technologies LLC, 633 Washington Street, 1776 Building, Midland, Michigan 48667 (US).
- (74) **Agent: LUNN, Jennifer H.** et al.; c/o Dinsmore & Shohl LLP, Fifth Third Center, One South Main Street Suite 1300, Dayton, Ohio 45402 (US).
- (81) **Designated States** (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO,

Published:

- *with international search report (Art. 21(3))*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

- (54) **Title:** CATALYST SYSTEMS AND PROCESSES FOR PRODUCING POLYETHYLENE USING THE SAME



- (57) **Abstract:** Embodiments of the present application are directed to procatalysts, and catalyst systems including procatalysts, including a metal-ligand complex having the structure of formula (I):