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(21) International Application Number: PCT/US98/24037 (22) International Filing Date: 12 November 1998 (12.11.98) (30) Priority Data: 60/065,577 12 November 1997 (12.11.97) US (71) Applicant: THE PENNSYLVANIA STATE UNIVERSITY [US/US]; 113 Technology Center, 200 Innovation Boulevard, University Park, PA 18602-7000 (US). (72) Inventor: ZHANG, Xumu; The Pennsylvania State University, Dept. of Chemistry, 152 Davey Laboratory, University Park, PA 16802 (US). (74) Agents: GARRETT, Arthur, S. et al.; Finnegan, Henderson, Farabow, Garrett & Dunner, L.L.P., 1300 I Street, N.W., Washington, DC 20005-3315 (US).		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>Without international search report and to be republished upon receipt of that report.</i>
(54) Title: CATALYSTS FOR ASYMMETRIC SYNTHESSES CONTAINING RIGID CHIRAL LIGANDS		
(57) Abstract This invention is to develop novel transition metal catalysts for the practical synthesis of important chiral molecules. The invention emphasizes asymmetric catalysis based on chiral bidentate phosphine ligands with cyclic ring structures which could be used to restrict conformational flexibility of the ligands and thus the efficiency of chiral transfer can be enhanced through the ligand rigidity.		