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International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁷ : C07D 231/10, 231/12, 403/02, 403/12		A1	(11) International Publication Number: WO 00/56717
			(43) International Publication Date: 28 September 2000 (28.09.00)
(21) International Application Number: PCT/US00/06557		(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, 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).	
(22) International Filing Date: 13 March 2000 (13.03.00)			
(30) Priority Data: 09/273,082 19 March 1999 (19.03.99) US			
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(54) Title: LIGANDS, TRANSITION METAL COMPLEXES AND METHODS OF USING SAME			
(57) Abstract Compositions including at least one organic ligand including a first hetero atom and second hetero atom directly bonded to the first hetero atom or located one carbon atom away from the first hetero atom, with at least one of the hetero atoms being nitrogen, and a transition metal moiety partially complexed by the organic ligand are provided. Such complexes have a controlled adaptable proton transfer ability and/or a hydrogen bonding ability which makes such compositions particularly useful as chemical reaction facilitators. Examples of chemical reactions facilitated by such compositions include hydrolysis reactions and carbon dioxide conversion reactions.			