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(21) International Application Number: PCT/US98/00147 (22) International Filing Date: 13 January 1998 (13.01.98) (30) Priority Data: 60/034,491 13 January 1997 (13.01.97) US (71)(72) Applicants and Inventors: MILEY, George, H. [US/US]; 912 West Armory Drive, Champaign, IL 61821 (US). SVED, John [AU/DE]; Falken Strasse 3, D-27755 Delmenhorst (DE). JURCZYK, Brian, Edward [US/US]; Apartment #102, 506 W. Griggs Street, Urbana, IL 61801 (US). (74) Agents: KASPER, Alan, J. et al.; Sughrue, Mion, Zinn, Macpeak & Seas, Suite 800, 2100 Pennsylvania Avenue, N.W., Washington, DC 20031-3202 (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, GE, GH, GM, GW, 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, US, 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, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i>

(54) Title: METHOD AND APPARATUS FOR PRODUCING COMPLEX CARBON MOLECULES**(57) Abstract**

A device (100) for producing fullerenes includes an IEC vacuum chamber (110) which has a central grid-like electrode (112) and a conductive outer shell (111) that are connected to a pulsed source of high voltage (114) and provide an electric field within the chamber (110). The applied voltage supports the creation of a plasma at the inner core of the chamber near the electrode (112). A carbon-based gas, which is introduced into the chamber (110), possibly along with an inert buffer gas, is dissociated into component carbon and hydrogen ions that are separated and the carbon ions recombined into fullerenes that appears as a soot. The device (100) includes a soot extraction mechanism for removing and collecting the fullerenes.

