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Falkenstein

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(54) **DIELECTRIC BARRIER DISCHARGE-DRIVEN (V)UV LIGHT SOURCE FOR FLUID TREATMENT**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 360 days.

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(57) **ABSTRACT**

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The present invention provides a DBD lamp used in fluid treatment systems, where the irradiated fluid is used as a low voltage outer electrode instead of a metallic wire mesh. This fluid is in direct contact with the lamp envelope which acts as a two-fold advantage. First, the fluid acts as a strong built-in cooling source. This allows the lamp to be driven at high voltage without forced cooling. Second, the replacement of the wire mesh as the outer electrode by fluid as well as the sleeve eliminates the absorption of radiation from the outer surface of the DBD-driven light source which more than doubles the efficiency of the DBD-driven light source. The inner high voltage electrode remains in the center of the coaxial tube assembly and provides high voltage across the gas to generate excimer formation.

(65) **Prior Publication Data**

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(51) **Int. Cl.**⁷ **H01J 1/02**

(52) **U.S. Cl.** **313/29; 313/163; 313/328**

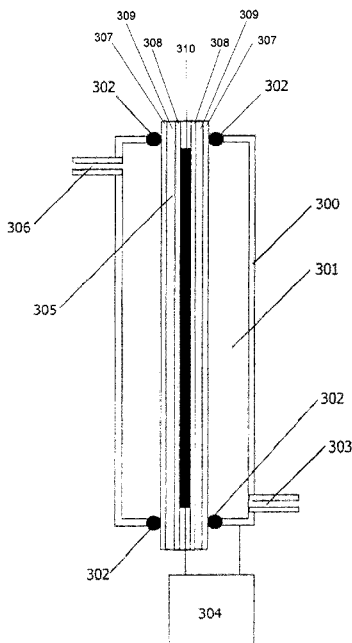
(58) **Field of Search** 313/16, 29, 33, 313/150, 163, 165, 166, 167, 171, 328

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12 Claims, 3 Drawing Sheets



DBD UV lamp / reactor system for water treatment