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3P29 - Plasma source for generating ultrasonic and ultraviolet radiation in water

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Ultrasonic and ultraviolet (UV) radiation in water leads to the production of hydroxyl radicals, and are thus considered advanced oxidation processes capable of removing organic contaminants from waters and wastewaters. Ultrasound in combination with UV irradiation increases the production rates of hydroxyl radicals, and traditionally involves both high-power ultrasonic transducers and UV lamps. This study investigates a plasma source for generating ultrasound and UV light simultaneously in water. Ultrasound transmitted to water is measured using a hydrophone, while the UV intensity is assessed using a radiometer and by chemical actinometry. Relationships between plasma parameters and produced ultrasonic and UV radiation in water are considered.

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