Abstract Submitted for the GEC14 Meeting of The American Physical Society

Selective irradiation of radicals for biomedical treatment using vacuum ultraviolet light from an excimer lamp RYO ONO, YUSUKE TOKU-MITSU, SHUNGO ZEN, SEIYA YONEMORI, The University of Tokyo — In plasma medicine, radicals are considered to play important roles. However, the medical effect of each radical, such as OH and O, is unknown. To examine the effect of each radical, selective production of radicals is needed. We developed selective production of radicals for biomedical treatment using a vacuum ultraviolet (VUV) light emitted from an excimer lamp. Selective irradiation of OH radicals can be achieved by irradiating the 172-nm VUV light from a Xe₂ excimer lamp to a humid helium flow in a quartz tube. The water molecules are strongly photodissociated by the VUV light to produce OH radicals. A photochemical simulation for the selective OH production is developed to calculate the OH density. The calculated OH density is compared with OH density measured using laser-induced fluorescence (LIF). Selective production of other radicals than OH is also discussed.

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Date submitted: 12 Jun 2014

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