

Abstract Submitted  
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**Characterization of a dielectric barrier discharge in controlled atmosphere**<sup>1</sup> FRIEDERIKE KOGELHEIDE, Ruhr Univ Bochum (BIMAP), BJÖRN OFFERHAUS, NIKITA BIBINOV, VERA BRACHT, RYAN SMITH, JAN-WILM LACKMANN, PETER AWAKOWICZ, Ruhr Univ Bochum (AEPT), KATHARINA STAPELMANN, Ruhr Univ Bochum (BIMAP), BIMAP TEAM, AEPT TEAM — Non-thermal atmospheric-pressure plasmas are advantageous for various biomedical applications as they make a contact- and painless therapy possible [1]. Due to the potential medical relevance of such plasma sources further understanding of the chemical and physical impact on biological tissue regarding the efficacy and health-promoting effect is necessary. The knowledge of properties and effects offers the possibility to configure plasmas free of risk for humans. Therefore, tailoring the discharge chemistry in regard to resulting oxidative and nitrosative effects on biological tissue by adjusting different parameters is of growing interest. In order to ensure stable conditions for the characterization of the discharge, the used dielectric barrier discharge was mounted in a vessel. Absolutely calibrated optical emission spectroscopy was carried out to analyze the electron density and the reduced electric field [2]. The rather oxygen-based discharge was tuned towards a more nitrogen-based discharge by adjusting several parameters as reactive nitrogen species are known to promote wound healing [3]. Furthermore, the impact of an ozone-free discharge has to be studied [4]. References: [1] Emmert et al., Clin. Plas. Med., 1, 24-29 (2013) [2] Bibinov et al., Meas. Sci. Technol., 18, 1327-1337 (2007) [3] Heuer et al., Nitric Oxide, 44, 52-60 (2015) [4] Kogelheide et al., J. Phys D: Appl Phys., 49, 087004 (2016)

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