

Abstract Submitted  
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**Temporal and spatial characteristics of Dielectric Barrier Plasma Actuators**<sup>1</sup> LUTFI OKSUZ, Suleyman Demirel University, NOAH HER-SHKOWITZ, University of Wisconsin Madison, ALI GULEC, Suleyman Demirel University — The temporal and spatial images of surface dielectric barrier plasma actuators with a wire/planar electrode combination and 1 kHz triangular applied voltages were taken using an intensified charge-coupled device (ICCD) camera and in addition a monochromator was used to measure the optical emission lines of discharges in air. Parallel and perpendicular images recorded with respect to discharge surface. Time resolved (nanosec order) images were used to calculate the discharge speed. Arc shaped discharges jumping from above the powered wire across the dielectric above the grounded planar electrode were observed for the first time. Nitrogen molecular second and first positive band lines were measured and electron and molecular temperatures were calculated using the SPECAIR code (Laux et al. Plasma Sources Sci. Technol. 2003,**12**,1255-138) and the Boltzmann plot method. The electron temperatures were found to be  $6020 \pm 1200$  and  $6800 \pm 400$  K from the Boltzmann method and SPECAIR code respectively.

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