Study of transient spark discharge in atmospheric pressure Arplasma

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Currently,Atmospheric Pressure Plasma Jets(APPJ) are expanded to the industrial andmedical industrial, low temperature plasma application became important.Therefore, measurement of plasma is also important works andwidely studied all around world. Previously study, APPJ which used high voltageDC power was observed Transient Spark (TS) discharge, self-pulsing dc TSdischarge. Although, TS discharge make relatively high current (1 ~ 10 A),their discharge current sustained for a short time(10 ~ 100 ns).[1] Therefore,ambient temperature of plasma could remain a low temperature. In this experiment, we use home made Highvoltage DC power supply (6 ~ 9 kV). And used Ar gas to 2 lpm. Typically,electrons play an important role in transporting external energy and carryingit to the plasma. and the experimental result of this report showed that TSdischarge electron density tendency by interferometery is close to electron densityby Stark broadening. Measured rotationaltemperature with operating voltage, also compared with electron densitytendency.