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Disinfection of *S. mutans* Bacteria Using a Plasma Needle at Atmospheric Pressure[1] S. HANSEN, J. GOREE, BIN LIU, Dept. of Physics & Astronomy, The Univ. of Iowa, D. DRAKE, Dows Institute for Dental Research, Dept. of Endodontics, College of Dentistry, The Univ. of Iowa — The plasma needle device produces a millimeter-size low-power glow discharge at atmospheric-pressure. It is intended for dental or medical applications. Radio-frequency high voltage is applied to a single needle electrode located inside a concentric gas-flow nozzle. A low-speed helium plasma jet flows out of the nozzle and mixes with ambient air. The jet is impinges on a surface that is to be treated, which in our test was a suspension of *S. mutans* bacteria that was plated onto the surface of agar nutrient in a Petri dish. *S. mutans* is the most important microorganism for causing dental caries. Imaging the sample after plasma treatment and incubation reveal the conditions where bacteria are killed, and the size of the treated spot.

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