

Abstract Submitted  
for the DPP20 Meeting of  
The American Physical Society

**Pulsed arc system for production of plasma-activated water with silver particles for biological applications.** IGOR KAGANOVICH, Princeton Plasma Physics Laboratory, PAVEL DOURBAL, TATIANA ARISTOVA, Dourbal Electric, Inc — Dourbal Electric, Inc. developed a pulsed arc system for production of plasma-activated water with silver nanoparticles for biological applications. The system uses a specially designed voltage pulser that allows for robust control of arc in water. An electrode is made of silver that is ablated by the arc, which produces silver nanoparticles of the size of tens of nanometers. It is well known that such nanoparticles have strong antibacterial and antiviral effects. In addition to production of nanoparticles, the arc discharge produces very long living (on order of weeks) active radical species which further contribute to destruction of pathogens, including viruses and bacteria, without harming live tissues. The water has been tested for biological effects against various medical conditions such as psoriasis on skin, fungal and stomach infections. Routine use of water as a nasal spray to wash nasal passages reduces nasal congestion and seems to ameliorate spread of infections; though all studies were conducted on volunteers without a large statistical sample.

Igor Kaganovich  
Princeton Plasma Physics Laboratory

Date submitted: 10 Nov 2020

Electronic form version 1.4