

Electrical breakdown of conductive water under ultrasound

Filatkin A A[®], Panov V A, Pecherkin V Ya, Vasilyak L M and Saveliev A S

Joint Institute for High Temperatures of the Russian Academy of Sciences,
Izhorskaya 13 Bldg 2, Moscow 125412, Russia

[®] filatkin.aa@phystech.edu

Experimental results on the development of electrical breakdown in water with conductivity $255 \mu\text{S}/\text{cm}$ under the influence of ultrasound are presented. "Point-pin" electrode geometry with discharge gap 8 mm was used. It is shown that ultrasonic waves have the most dramatic effect on processes regarding thermal plasma formation in the interelectrode gap and thus, breakdown, at the voltage close to minimum breakdown voltage, when the probability of discharge initiation doubles and the time of the pre-breakdown stage is reduced in comparison to the experiment with non-ultrasonic environment.