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## **Determination of the electrical circuit equivalent to a pulsed discharge in water: assessment of the temporal evolution of electron density and temperature**

Pulsed electrical discharges in dielectric liquids are intensively studied due to the wide range of applications in which they are implicated. Despite the simplicity of the experimental manipulation of these discharges, the underlying fundamental physics is relatively complex. In this study, we use the electrical characteristics, voltage and current, of pulsed discharges in water (various applied voltage and pulse width conditions) to determine the equivalent electrical circuit of the plasma. Based on a Mayr-type model, the plasma resistance is time dependent, but the inductance is not. Considering that plasma resistivity also depends on electron density and temperature (Spitzer formula), the temporal evolution of these two parameters were also determined.

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