

Abstract Submitted  
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**Osmotic pressure on cell or virus membranes in a saline interacting with weakly ionized plasma.** MIKHAIL SHNEIDER, Princeton University, MIKHAIL PEKKER, Retired — In this talk attention is drawn to the importance of accounting for osmotic pressure when analyzing physiological effects on cells and viruses in plasma medicine and disinfection. The effect of a plasma on living cells and viruses in a physiological solution can be related to a change in pH and the osmotic pressure difference across the cell membrane, as a result of the injection into a physiological solution of additional long-lived solvated (hydrated) ions by the plasma. This, in turn, leads to a stretching or compression of the membrane, depending on the difference of total external and internal pressures. The hypertonic solution mode is most likely realized. The selective effect of plasma on cells, observed in experiments, may be associated with the change in the mechanical properties of membranes (and thereby, a weakening of their protective properties). Corresponding estimates are given. Our work does not claim to have found the only reason, why weakly ionized non-equilibrium plasma leads to cell and virus death, but has identified a potential further physical mechanism that has relevance in plasma induced biological effects. 1. M. N. Shneider, M. Pekker, J. Appl. Phys. 123, 204701 (2018); 2. M.N. Shneider, M. Pekker, Plasma Res. Express 1, 045001 (2019)

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