Investigation of gas flows created by a discharge with a liquid electrolyte cathode

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The discharge with a liquid electrolyte cathode at atmospheric pressure in the air was studied using PIV and high-speed photography methods. The velocity field of the gas flows created by the discharge was found. It was shown that the gas flow created by the discharge moves down along the discharge channel to the surface of the solution, reaching a maximum velocity near its surface. Meeting with the surface of the solution, the gas begins to spread along it in a thin layer about two millimeters thick. Thus, it was found that the components of the solution transferred from the solution to the gas phase under the action of a discharge with a liquid cathode are removed from the discharge zone in a horizontal direction, along the surface of the solution.