Study of air-plasma chemical reactor for a new medical device

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The research results of a plasma chemical reactor for a new medical apparatus for exogenous NO-therapy, based on non-stationary pulsed air discharges are presented. The apparatus works due to a landmark method of nitric oxide generation, based on the usage of non-equilibrium plasma pulsed discharges in the air stream in conditions of atmospheric pressure. On the one hand, thermal non-equilibrium plasma usage allows to get high nitric oxide production efficiency, on the other hand, at the expense of a chain exception (gas heating — gas cooling), and, as a consequence, the necessity of intensive cooling of discharging device elements, it helps to lower sufficiently the energy consumption. Also a very important property for the developed device is the possibility of the wide range nitrogen oxide content regulation in an output stream that is a necessary factor for treatment of various pathologies.

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