GEC15-2015-000309

Abstract for an Invited Paper
for the GEC15 Meeting of
the American Physical Society

Cold Atmospheric Plasma for Medicine: State of Research and Clinical Application

THOMAS VON WOEDTKE, Leibniz Institute for Plasma Science and Technology (INP Greifswald)

Basic research in plasma medicine has made excellent progress and resulted in the fundamental insights that biological effects of cold atmospheric plasmas (CAP) are significantly caused by changes of the liquid environment of cells, and are dominated by redox-active species. First CAP sources are CE-certified as medical devices. Main focus of plasma application is on wound healing and treatment of infective skin diseases. Clinical applications in this field confirm the supportive effect of cold plasma treatment in acceleration of healing of chronic wounds above all in cases where conventional treatment fails. Cancer treatment is another actual and emerging field of CAP application. The ability of CAP to kill cancer cells by induction of apoptosis has been proved in vitro. First clinical applications of CAP in palliative care of cancer are realized.

In collaboration with Hans-Robert Metelmann, University Medicine Greifswald; Helmut Uhlemann, Klinikum Altenburger Land GmbH Altenburg; Anke Schmidt and Kai Masur, Leibniz Institute for Plasma Science and Technology (INP Greifswald); Renate Schönebeck, Neoplas Tools GmbH Greifswald; and Klaus-Dieter Weltmann, Leibniz Institute for Plasma Science and Technology (INP Greifswald).