

Abstract Submitted  
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**Plasma Medicine: Current Achievements and Future Prospects**

MOUNIR LAROUSSE, Old Dominion University — Research on the biomedical applications of low temperature plasmas started with small scale experiments that were simply aimed at discovering what happens to biological cells when exposed to the chemically rich environment of plasma. These early experiments took place in the mid to late 1990s. As interest in this multidisciplinary field dramatically rose, various engineering and physics groups collaborated with biologists and medical experts to investigate the use of plasma technology as a basis for innovative medical approaches to cure various diseases. However, many questions concerning the fundamental mechanisms involved in cell-plasma interaction remained unanswered. As a result various workshops were organized to gather the diverse research community in the field of plasma medicine in order to have a fruitful exchange of ideas regarding the scientific challenges that needed to be surmounted to advance and expand the field's knowledge base. The present GEC workshop continues this important tradition of scientific cooperation since there is still a significant lack of understanding of many of the biochemical and molecular pathways that come into play when biological cells are exposed to plasmas. In this talk, first background information on the various plasma devices developed in our institute will be presented. This will be followed by a summary of our work on the effects of plasmas on prokaryotic and eukaryotic cells. The talk will be concluded by presenting our vision of the future of the field and an outline of the main challenges that need to be overcome if practical medical applications are to be achieved.

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