

Evolutionary growth of knowledge and new technological directions of non-thermal plasma technology in medicine

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ABSTRACT: The paper analyzes the evolution of scientific production and patenting, main proxies of scientific and technological breakthroughs, concerning non-thermal plasma for biomedical applications in order to detect emerging technological trajectories. New scientific directions of non-thermal plasma in medicine play a critical role because they might generate important innovations that could change the clinical practice. Occurrences of scientific products and patents are retrieved with Boolean queries on SciVerse database after a meticulous procedure to delineate the most promising applications in biomedical sciences. Data are analyzed with two methodological approaches: an exponential model of growth and regression analysis. Results show high rates of scientific growth for applications of non-thermal plasma in disinfection, anticancer treatments, dermatology, whereas for surgery, although values of occurrences are similar to the other research fields, it shows a different trend that after the 2005 is decreasing due to the peculiar application to materials for implantation. Some arguments are discussed at the end of the paper.

Keywords: Non Thermal Plasma, Technological Trajectories, Plasma, Cancer, Medicine

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