

# **Seminar Talk**

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**3:00 p.m. KH 224**

**Title:** Efficacy of Low Temperature Plasma against Cancer Cells

**Abstract:**

Low temperature plasma (LTP) generates biologically tolerable gas discharges, suitable for the treatment of biological tissues. Medical achievements of the plasma pencil, broadly speaking low temperature plasma, include the inactivation of bacteria and fungi, disinfection and healing of wounds, killing of cancer cells, and dental hygiene. Recently, therapeutic effects of LTP on cancer cells and tumors drew a lot of attention and promoted plenty of research on a variety of mammalian cell lines. To ignite the plasma pencil repetitive high voltage pulses with short width (from nanosecond to microsecond) are applied. Working gas can be helium or a mixture of helium with air, argon or oxygen. Although non-equilibrium plasma generates various agents that could play biological roles including UV radiation, heat, and charged particles, it was found that the oxygen-based and nitrogen-based chemically reactive species (ROS and RNS) are responsible for much of the impact on plasma treated biological cells. This presentation will introduce the plasma pencil and its biomedical applications with a focus on its efficiency against cancer cells. Two different approaches to cancer cell treatment will be explained.

**Bio:**

Soheila Mohades received her B.S. degree in Physics from Shahid Beheshti University of Tehran (Iran) and her M.S. degree in Plasma Engineering from Laser and Plasma Engineering Institute of Shahid Beheshti University. She is currently a PhD student in the Plasma Engineering and Medicine Institute (PEMI) at Old Dominion University. Her research interests include biomedical applications of plasma, plasma diagnostic, cell- surface interaction, and plasma- liquid interactions. She has authored and co-authored over 10 research papers, conference posters and presentations.