

Cold Atmospheric Plasma Polymerization for Tailored Functional Surfaces

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Abstract

By briefly introducing about “International Ph.D. Program in Plasma and Thin Film Technology” and “Center for Plasma and Thin Film Technologies” at the beginning, this talk will share some works, which have been accomplished with the involvement of cold plasma processes, and how the research interests of the presenter have been shifted to cold atmospheric plasma (CAP) systems. This will further include some CAP applications for academic research topics or requirements from industrial partners, which encompass from self-healing composites, biomaterials and functional textiles to bespoke plasma and power systems.

Keywords: Cold atmospheric plasma, Polymerization, Biomaterials, Bespoke Plasma and power systems

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Education History

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Professional Background

2023 - Present	Assistant Professor Ming Chi University of Technology (MCUT), New Taipei, Taiwan
2022 – 2023	Senior Researcher Taiwan Textile Research Institute (TTRI), New Taipei, Taiwan
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Selected Publications

1. *W.Y. Chen, J.S. Lee, T.C. An, A. Matthews, “A Remote Atmospheric Pressure Plasma-Assisted Textile Functionalization Process on Polymeric Scaffolds for Bone Tissue Engineering”, Accepted by *Thin Solid Films*, 2023.
2. *W.Y. Chen, A. Matthews, F.R. Jones, K.S. Chen, “Immobilization of Carboxylic Acid Groups on Polymeric Substrates by Plasma-enhanced Chemical Vapor or Atmospheric Pressure Plasma Deposition of Acetic Acid”, *Thin Solid Films*, Vol. 666, 30 Nov. 2018, pp. 54-60 (2018) DOI: 10.1016/j.tsf.2018.07.051. (IF: 2.183)
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4. K.C. Yang, C.C. Wu, *W.Y. Chen, S. Sumi, T.L. Huang, “l-Glutathione enhances antioxidant capacity of hyaluronic acid and modulates expression of pro-inflammatory cytokines in human fibroblast-like synoviocytes”, *J Biomed Mater Res Part A*, 104A (2016) 2071– 2079. DOI: 10.1002/jbm.a.35729. (IF: 4.854)
5. S.C. Liao, K.S. Chen, *W.Y. Chen, C.Y. Chou, K.C. Wai, “Surface Graft Polymerization of Acrylamide onto Plasma Activated Nylon Microfiber Artificial Leather for Improving Dyeing Properties”, *Int. J. Chem. Eng. Appl.*, (2013) Vol.4 (2): 78-81. DOI: 10.7763/IJCEA.2013.V4.267. (EI)