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WITHDRAWN (I) Plasma Assisted Advanced Surface Engineering: A Synopsis of Plasmionique's Collaborative R&D

Tuesday 20 June 2023 09:00 (30 minutes)

Since its inception in 1999, Plasmionique has been carrying out collaborative research with Canadian Universities, national laboratories as well as international groups and companies. Such collaborations have allowed Plasmionique to remain at forefront of technological development and fulfill its mission of proliferating and commercializing plasma technology as an environmentally clean substitute for many challenging problems related to Advanced Surface Engineering, Material Synthesis, and Thin Film Processing. In this talk, we will present some examples to highlight the diversity of the applications that plasma technology could offer. Examples of topics discussed include, the synthesis of various allotropes of carbon, such as CNT [1], graphene [2], diamond [3]; surface engineering of forestry products [4]; thin film synthesis of multiferroic materials using conventional and hybrid [5] PVD techniques for memory [6] and neuromorphic engineering applications [7]; biomaterial surface engineering for deposition of antibacterial coatings [8]; DLC hard coating on implants for protection against corrosion and erosion [9]; implantation of short-life β -emitting radioisotopes in medical implants [10] and controlling the corrosion rate of biodegradable materials.

- 1- J.B. Kpetsu, et al., *Nanoscale Res Lett* (2010) 5:539–544
- 2- P. Vachon, et al., *J. Phys. D: Appl. Phys.* 54 (2021) 295202 (13pp)
- 3- A. Sarkissian, et al., CAP/COMP/CASCA 2004 Congress, June 13, 2004, Winnipeg
- 4- S. Babaei, et al., et al, *Plasma Process Polym.* 2020;17:e2000091
- 5- D. Benetti, et al., *Scientific RepoRts* | 7: 2503 | DOI:10.1038/s41598-017-02284-0
- 6- F. Ambriz-Vargas, et al., *Appl. Phys. Lett.* 110, 093106 (2017)
- 7- G. Kolhatkar, et al., *ACS Appl. Electron. Mater.* 2019, 1, 828–835
- 8- L. Bonilla-Gameros, et al., *Nanomedicine : Nanotechnology, Biology and Medicine*, 24(2020)102142
- 9- G. Morand, et al., *Surf Interface Anal.* 2021;53:658–671.
- 10- F. Marion, et al., *Plasma Sources Sci. Technol.* 18 (2009) 015014

Keyword-1

Plasma

Keyword-2

Surface Engineering

Keyword-3

R&D

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