Special Issue

Atmospheric Pressure Plasmas in Material Science

Message from the Guest Editor

Atmospheric pressure plasmas are unique non-equilibrium systems that typically have an electron temperature that is relatively high in comparison to ion and gas temperatures, which are generally close to room temperature. Because of the partially ionized nature of this type of plasma, a unique set of conditions occurs, in which material processing benefits from chemical interactions, rather than the energetics of plasma components. Advanced plasma-material interactions enable new opportunities in material sciences, including nanostructure synthesis, film deposition, and surface functionalization, to name just a few. Moreover, by tuning plasma properties, it is possible to achieve the desired material composition, morphology and surface activity in a controlled manner. Thus, atmospheric pressure plasmas are an excellent means for fulfilling material requirements for industrial, environmental, and medical applications. [...]

Guest Editor

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