Application of Dielectric Barrier Discharge Non-thermal Plasma in Nanosynthesis

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Dielectric barrier discharges (DBD[1]) are used to generate non-thermal plasma in an economic and reliable way. Non-thermal ions are extracted from the atmospheric air plasma cloud by means of electric field created using the additional electrode placed in vicinity of DBD generator and powered by DC high voltage. The extracted ions are introduced into electrolyte filled with precursor material. Being low-energetic, the ions interact only with the surface of electrolyte. Thus, the synthesis of nanomaterials is contactless and spatially confined to thin gas-electrolyte interface. The first application of this method was in the synthesis of metal nanoparticles.

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References:

[1] https://en.wikipedia.org/wiki/Dielectric_barrier_discharge (30/06/2015)