

P2.3009 Investigating the effect of different carrier gases on plasma-assisted multi-walled carbon nanotube growth

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See the full abstract here

<http://ocs.ciemat.es/EPS2019ABS/pdf/P2.3009.pdf>

A theoretical model is created consolidating the charging rate of the carbon nanotube (CNT), the energy of all the species present in plasma, and the growth rate of the multi-walled carbon nanotube (MWCNT) owing to the surface and bulk diffusions and accumulation of particles on the catalyst nanoparticle surface. Using acetylene as the hydrocarbon source, we have compared the influence of distinctive carrier gases on the structure of CNT. The conclusion drawn from the results obtained were that while argon favors growth rate of nanotubes, ammonia contributes to diminishing its growth rate whereas nitrogen hinders both the growth rate and radius of nanotube1-3. The work can be thought useful to serve to a better understanding of the growth of MWCNT in the plasma environment and to study their field emission applications.

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