

Abstract Submitted
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Investigation of nanoparticle growth in ECR based plasma using Langmuir probe PAVEL YURYEV, Laplace, Toulouse, ALEXANDER DRENIK, Laplace, Toulouse / Joef Stefan Institute, Ljubljana, Slovenia, MARIA CALAFAT, FREDDY GABORIAU, RICHARD CLERGEREAUX, Laplace, Toulouse, LAPLACE, TOULOUSE, FRANCE TEAM, JOEF STEFAN INSTITUTE, LJUBLJANA, SLOVENIA TEAM — When combining nanoparticle growth in the volume phase and matrix deposition on the surfaces, cold plasma process is an interesting route to form nanocomposite thin films in one single step. Although working conditions are not favorable for growth mechanism in the plasma volume, microwave multipolar plasma excited at distributed electron cyclotron resonance in acetylene leads to the formation of powders. The first attempt to explain it was the presence of strong magnetic field. To investigate it, measurements by a cylindrical Langmuir probe were performed along the process for different probe positions in the ECR reactor. These measurements were locally affected depending on the plasma parameters: for example, Bohm criterion was not every time satisfied. It suggests that the high magnetic field confines negatively charged species increasing the recombination probability and contributing to the formation of nanoparticles.

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