

Magnetron based gas-aggregation deposition system – nanoclusters production and stability

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Gas-aggregation nanocluster source is one of possible sources for nanocluster production. We present gas – aggregation nanocluster deposition system of our own design based on the Haberland et al. approach [1]. The target material is sputtered by a magnetron into the medium pressure aggregation chamber with variable length where nanoclusters are formed. Then, they are blown off by the working gas through a slit. The resulting beam of nanoclusters is then scanned or filtered using a dedicated quadrupole mass filter . In our contribution we present the system, its properties and dependence of the size of copper nanoclusters on several physical parameters of the source. The efficiency of the cluster production, deposition rate, energy of nanoclusters, stability of the process and other device properties has been studied.

[1] Haberland H. et al., J. Vac. Sci. Technol. A 12 (5), 1994, 2925-2930.