Supplementary Materials: Determining the Parameters of Importance of a Graphene Synthesis Process Using Design-of-Experiments Method

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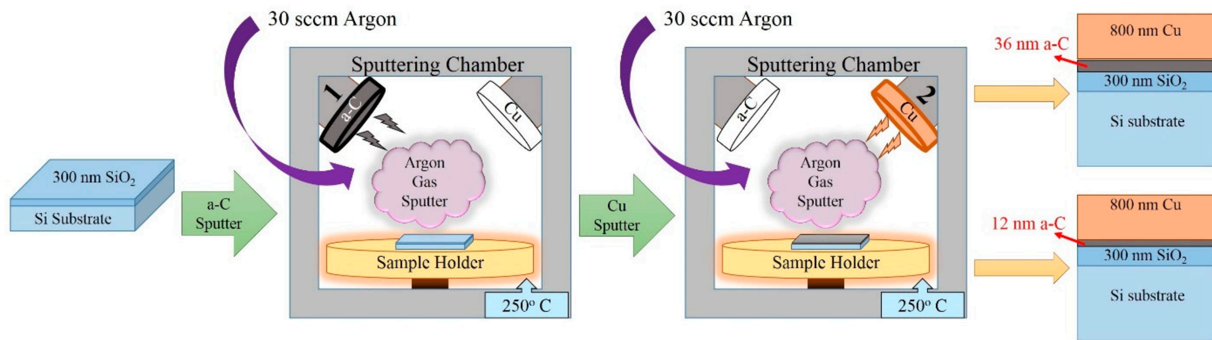
1. Sample Preparation



- Copper Thickness – 800 nm
- a-C Thickness – 2 sets of samples with 36 nm and 12 nm each

Figure S1. Sample preparation using PVD (Physical Vapor Deposition) method; 2 sets of samples each having 36 nm and 12 nm thick a-C (amorphous carbon) thin films are prepared.

2. Thermal Annealing

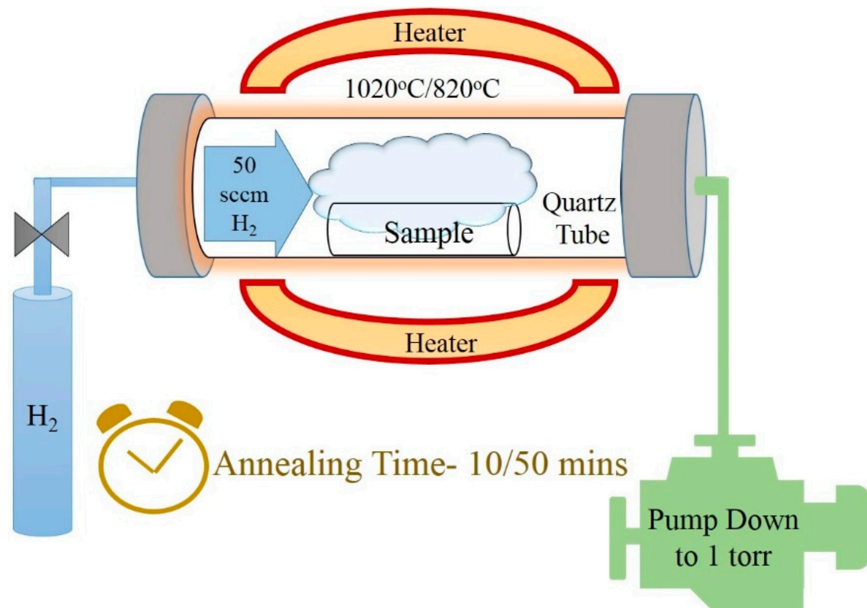


Figure S2. Thermal Annealing after sample preparation; Annealing is carried out at 2 levels of temperatures that are 820 °C /1020 °C and 2 levels of duration that are 10 min/50 min.

3. Thermo-Mechanical Properties

Table S1. Thermo-mechanical properties of materials used for Finite Element Analysis (FEA).

Property	SiO_2 Film	a-C Film	Cu Film
Thermal Coefficient of Expansion (°C $^{-1}$)	5.0×10^{-7} [1]	1.5×10^{-6} [2]	1.6×10^{-5} [3]
Young’s Modulus (Pa)	7.00×10^{10} [4]	7.59×10^{11} [5]	1.15×10^{11} [6]
Poisson’s Ratio	0.1700 [4]	0.1700 [5]	0.3430 [6]

References

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