

Supplementary Information

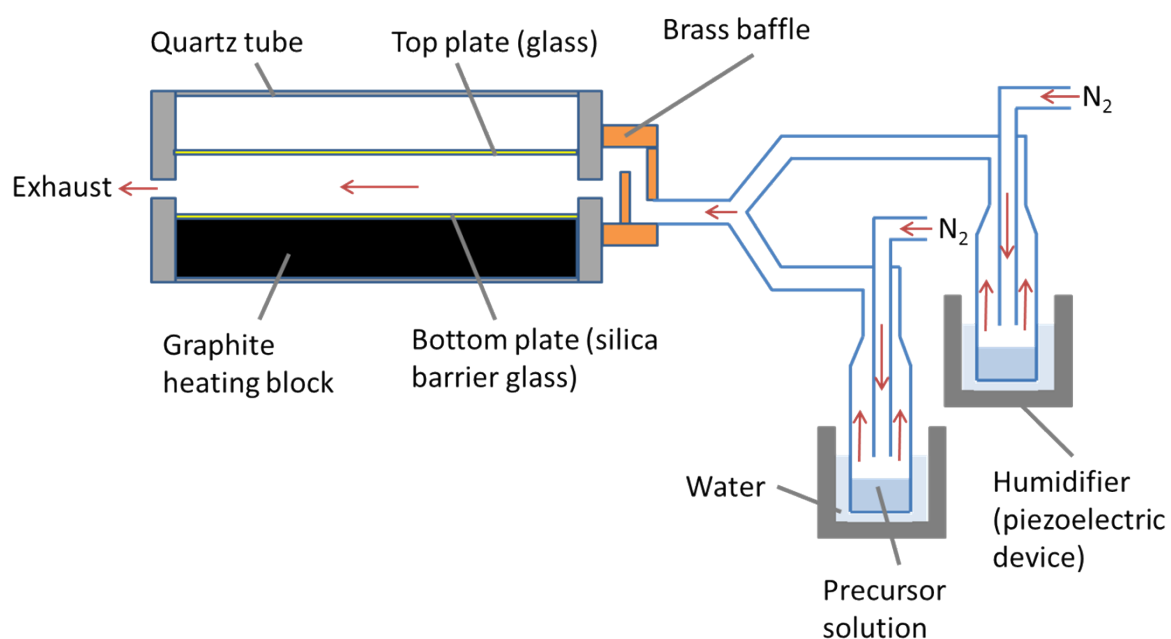


Fig.1. The precursor solutions consist of an organic solvent. The aerosols are generated at room temperature using ultrasound in the humidifiers. The nitrogen carrier gas forces the aerosol droplets to mix combine at the Y-junction before entering the brass baffle. Deposition is achieved by heating the horizontal bed to the desired temperature and then allowing the precursor mixture to enter until all of it is used up. The film is cooled under a lower flow rate of nitrogen gas.

The rig consisted of an open ended quartz tube capped at both ends with stainless steel plates, the inlet and outlet plates. The steel plates support the upper plate which is placed about 5 mm above the glass bottom plate. The glass substrate was heated in the rig on top of a graphite heating block containing a Whatman cartridge heater. The substrate temperature was controlled and monitored using a Pt-Rh thermocouple. The inlet plate was attached to a brass baffle which directs the flow of the aerosol in the carrier gas into the chamber and together with the top plate they ensure a laminar gas flow. Any unreacted chemicals and reaction by-products leave *via* the exhaust in the outlet end plate. The glass substrate consisted of SiO₂ barrier coated float-glass (NSG Ltd) which was 15 cm x 4 cm x 0.3 cm in dimension. The coating prevents the ions from within the glass diffusing to the surface. The glass substrate was first cleaned with detergent and water, followed by propan-2-ol, propanone, and then air dried.