

Figure S1: Coating volume fraction of particle at delay time threshold. Onset of coating evaporation occurs, for the SP2 as operated in this study, at  $\sim$ 3-5 times lower laser intensity than incandescence. Consequently the whole particle must have a  $\sim$ 3-5 larger scattering cross section than the pure BC core in order to reach the delay time threshold. The dependence of this threshold to the refractive indices and laser intensity ratios is provided here as a function of the core size.