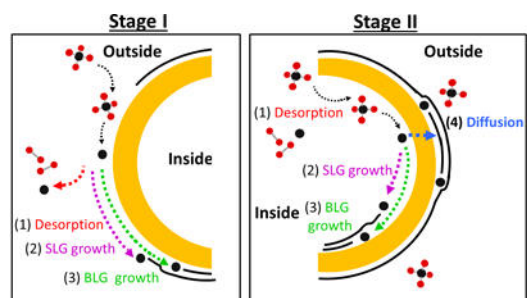


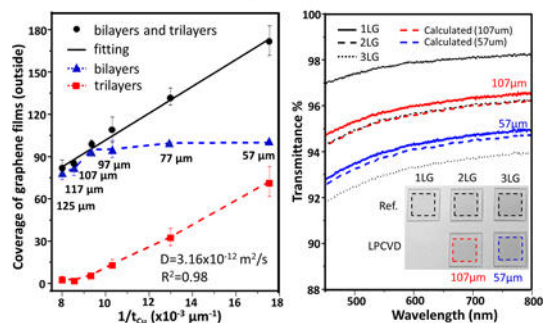
Research Exchange Seminar

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Synthesis of Graphene Films on Cu Enclosures with Layer Control



To realize the application of graphene for transparent electrodes and flexible touch screen, we study the synthesis of graphene films with layer control. We investigated the growth mechanisms of graphene on the outside surface of Cu enclosures at low pressures by chemical vapor deposition. We observed that the asymmetric growth environment of a Cu enclosure can yield a much higher (up to 100%) bi-/multi-layer coverage on the outside surface as compared to the growth on a flat Cu foil, where both sides are exposed to the same growth environment. By simultaneously examining the graphene films grown on both the outside and inside surfaces of the Cu enclosure, we find that carbon can diffuse from the inside surface to the outside via exposed copper regions on the inside surface. The kinetics of this process are examined by coupling the asymmetric growth between the two surfaces through a carbon diffusion model. Finally, using these results, we show that the thickness of graphene can be tuned simply by changing the thickness of the Cu foil, further confirming our model of carbon delivery through the Cu foil.



January 14, 2015, 12:00 PM

MIT Duboc 4-331

Pizza will be served

