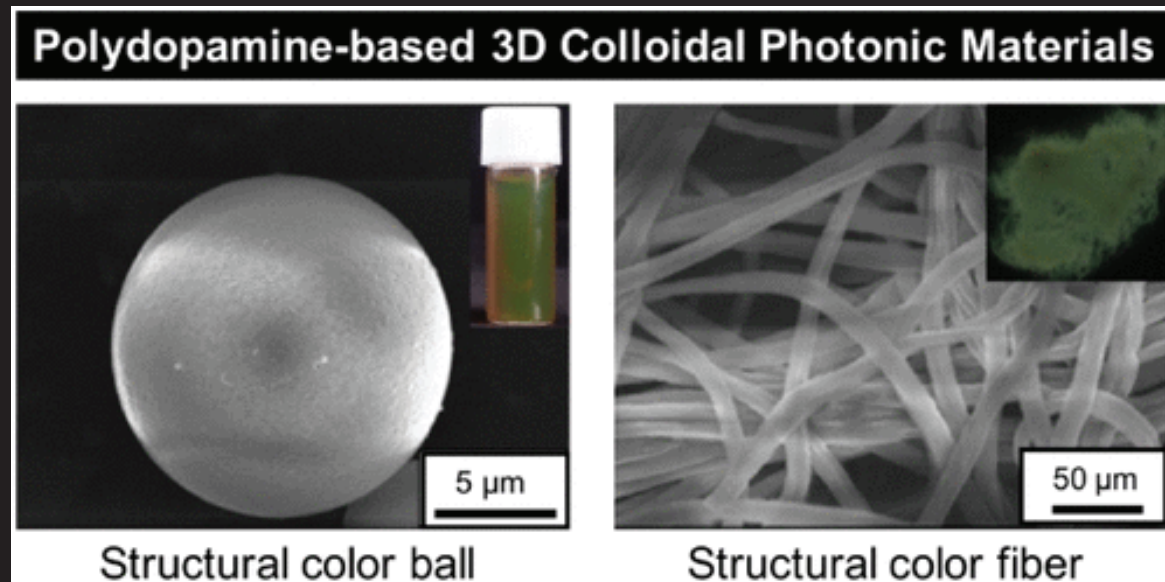


Taken from nature:

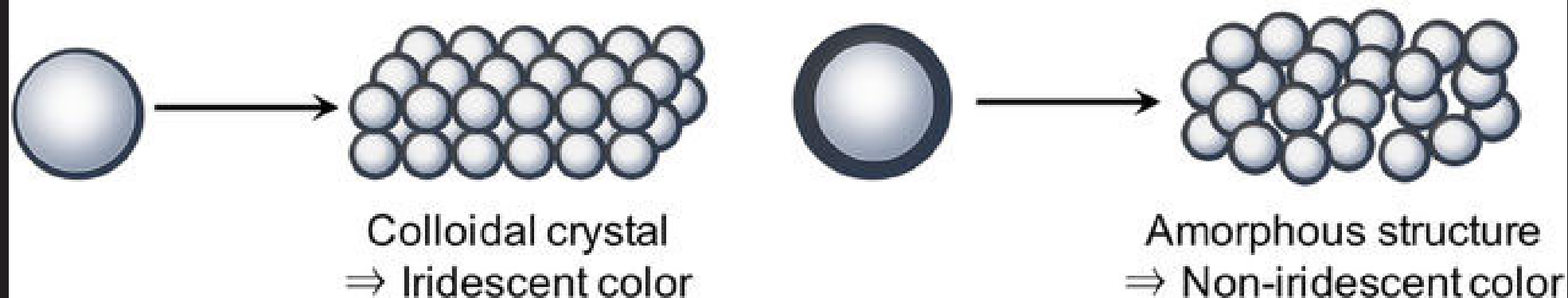
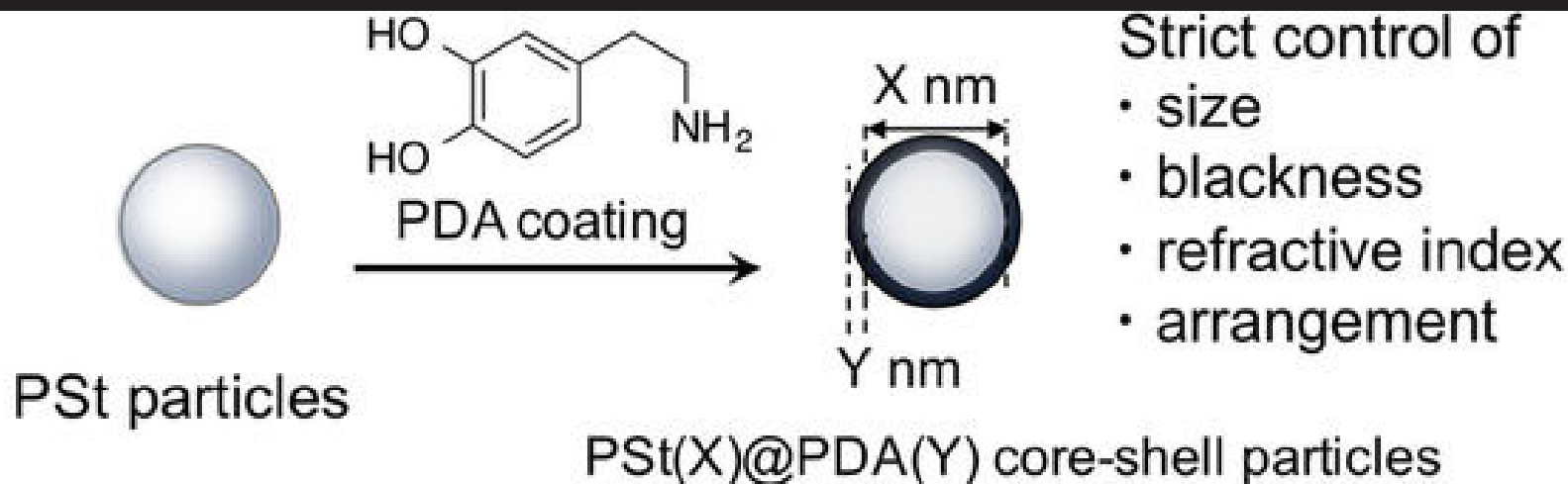
Dihydroxyphenylalanine (Dopa)

Melanin granules, nanostructural elements producing structural colors



Derived in lab:

Core-shell particles of polystyrene (PST) core
Polydopamine (PDA) shell



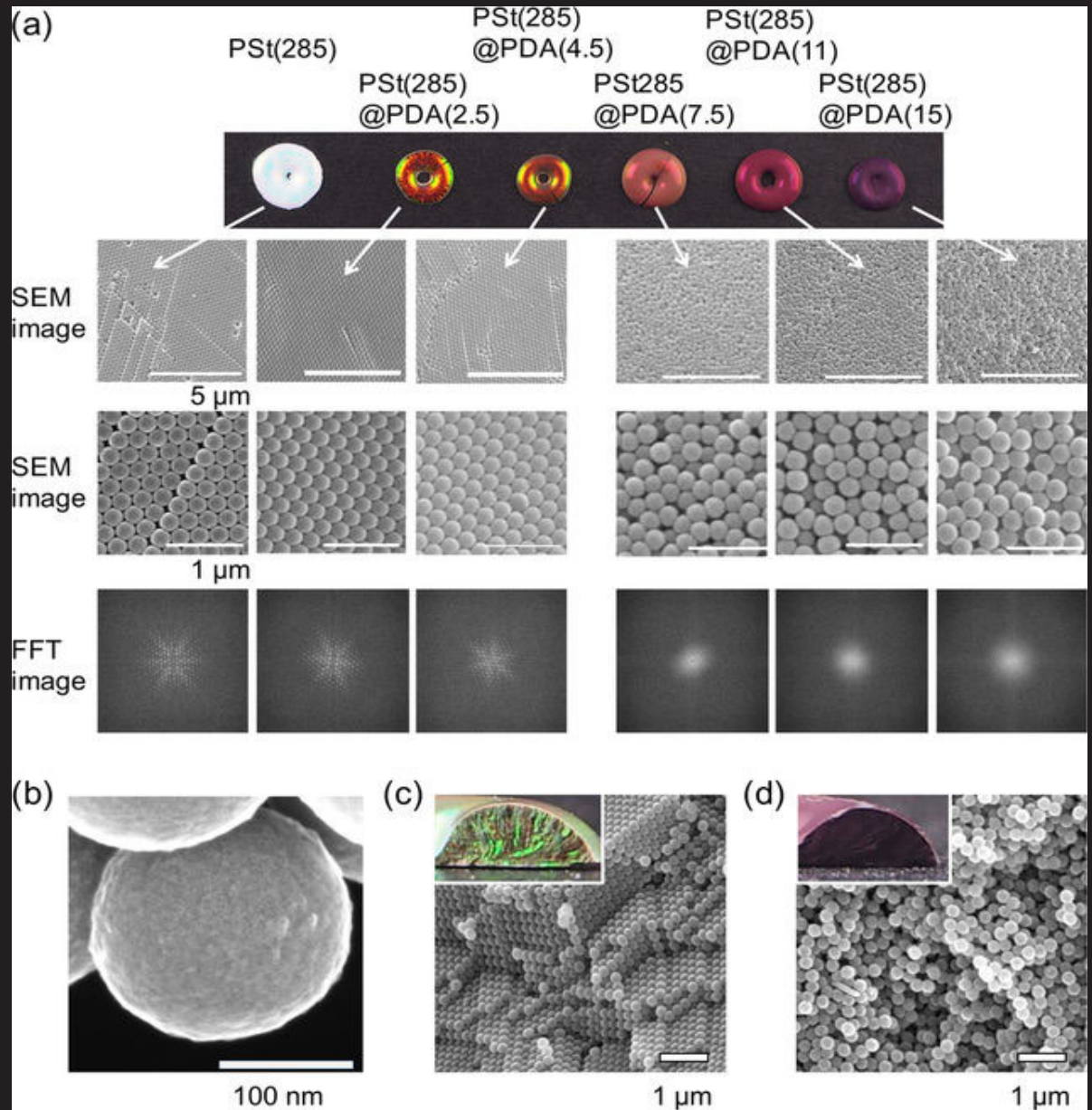
$$m\lambda = \sqrt{\frac{8}{3}d^2(n^2 - \sin^2 \theta)} \quad (1)$$

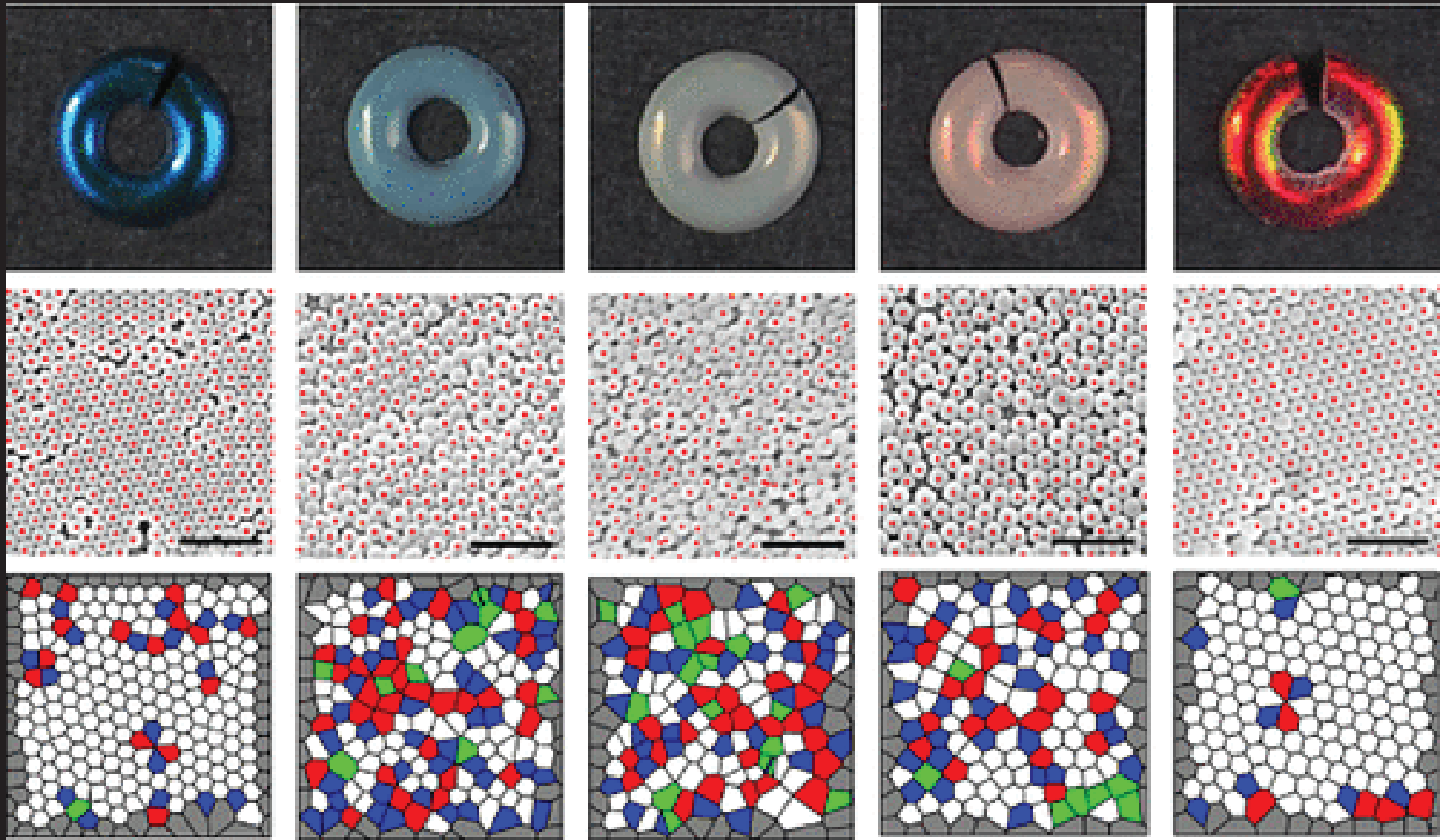
Effecting Iridescence:

Shell Material

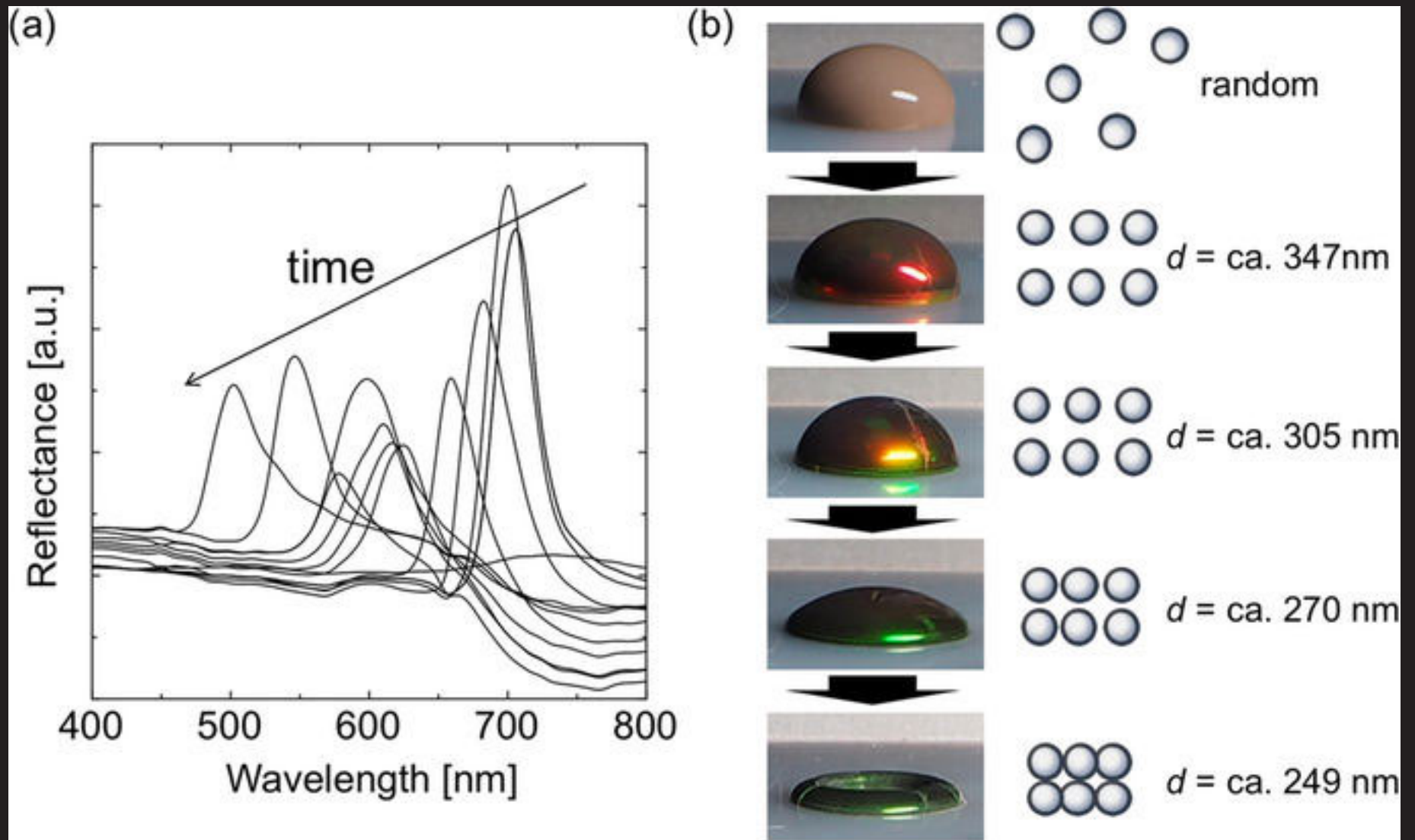
Arrangement

Uniformness

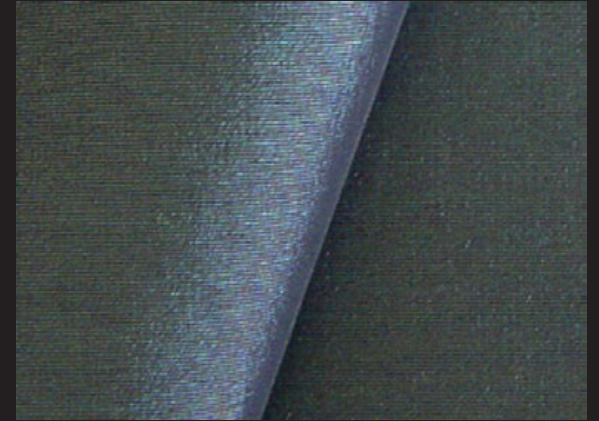
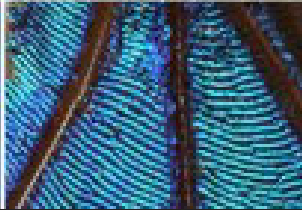
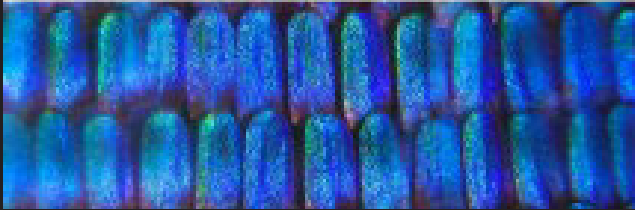
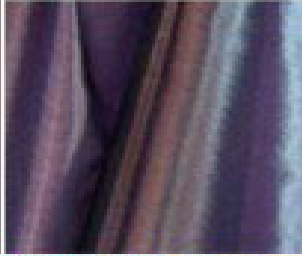




Arrangement of particles effects reflectivity



Thickness of PDA shell layer effecting reflectance wavelength



<https://www.nature.com/articles/srep33984>

<http://www.readcube.com/articles/10.1038/srep33984>

<http://pubs.acs.org/doi/abs/10.1021/acs.langmuir.7b00707?src=recsys&journalCode=langd5>

<http://pubs.acs.org/doi/abs/10.1021/acsami.7b03453?src=recsys&journalCode=aamick>

<http://www.cam.ac.uk/research/news/flexible-opals>

<https://asknature.org/idea/morphotex-structural-colored-fibers/#.WdSGkVtSziU>