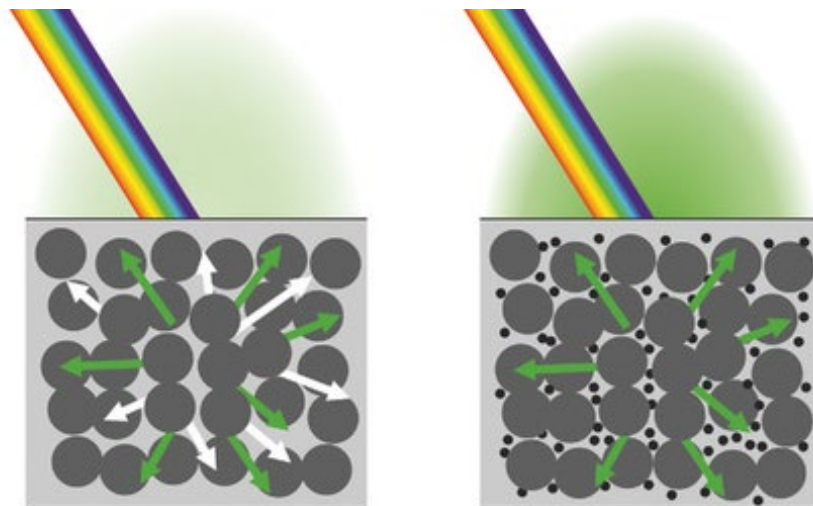


## Bio-Inspired Photonic Pigments

Huong Vy Sophie DO

Due to their bright appearance and non-fading nature, structurally colored materials have brought lots of interests in replacing traditional pigments. They can be used in a broad range of industrial applications such as in painting, textile, coating and printing. As part of a broader project, in which photonic pigments are fabricated via the confined self-assembly of block copolymers (BCPs) aiming to concentric lamellar structures whose color can be tuned by changing the domain periodicity. The goal of this thesis was to combine structural coloration and broadband absorption. In detail, by adding carbon black at the core of the particles, the absorber is expected to reduce the incoherent scattering of the light and to increase the color vibrancy. Core-shell particles were prepared via double emulsification. Several BCPs and surfactants were used. Two systems led to promising results since it was possible to obtain cavities, but the process is irreproducible and more studies are needed.



Prof. Ullrich Steiner, Prof. Chris Weder, Prof. Stefan Salentinig, Dr. Andrea Dodero