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On the geometry of demixing: A study of lipid phase separation on curved surfaces

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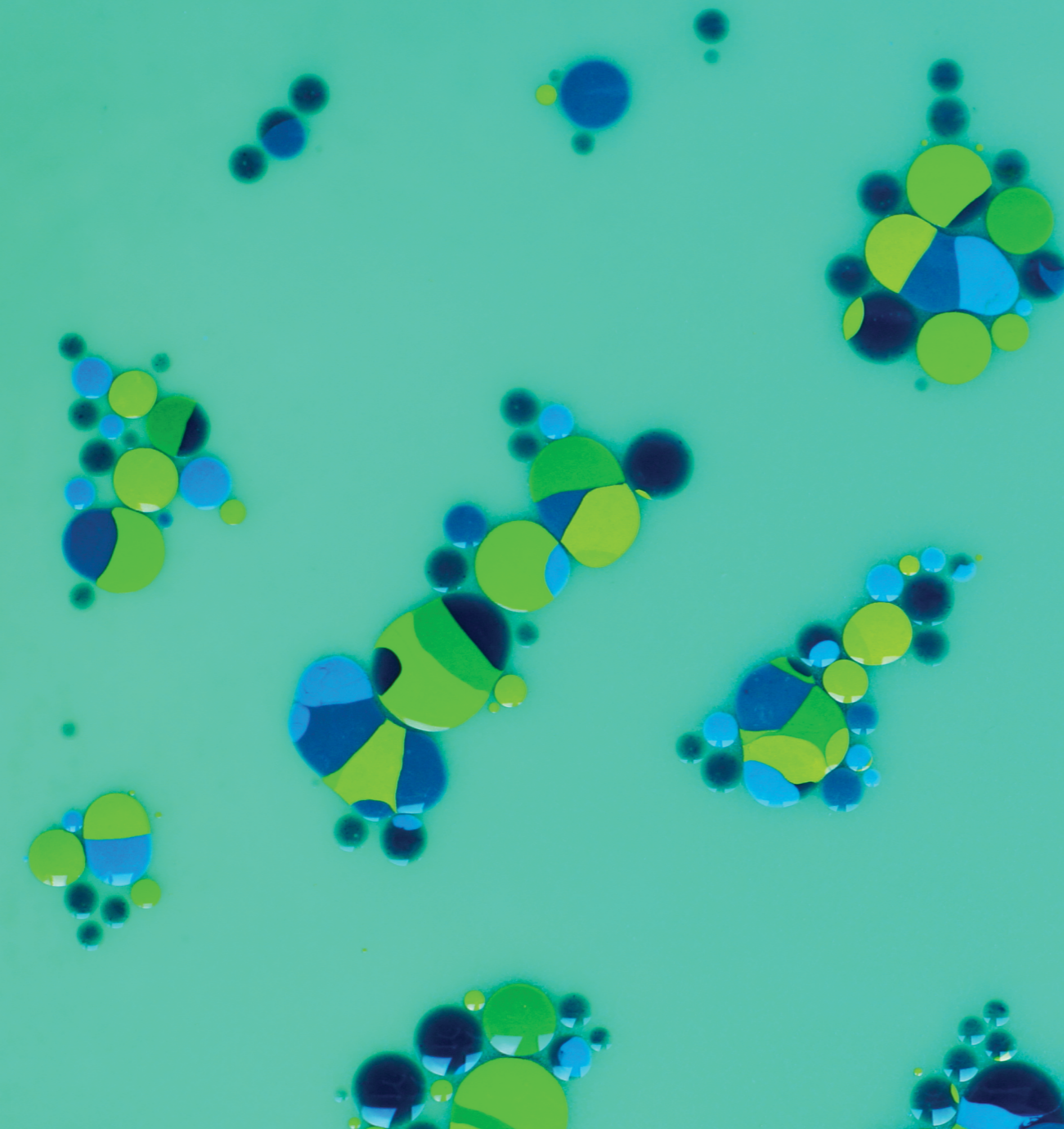


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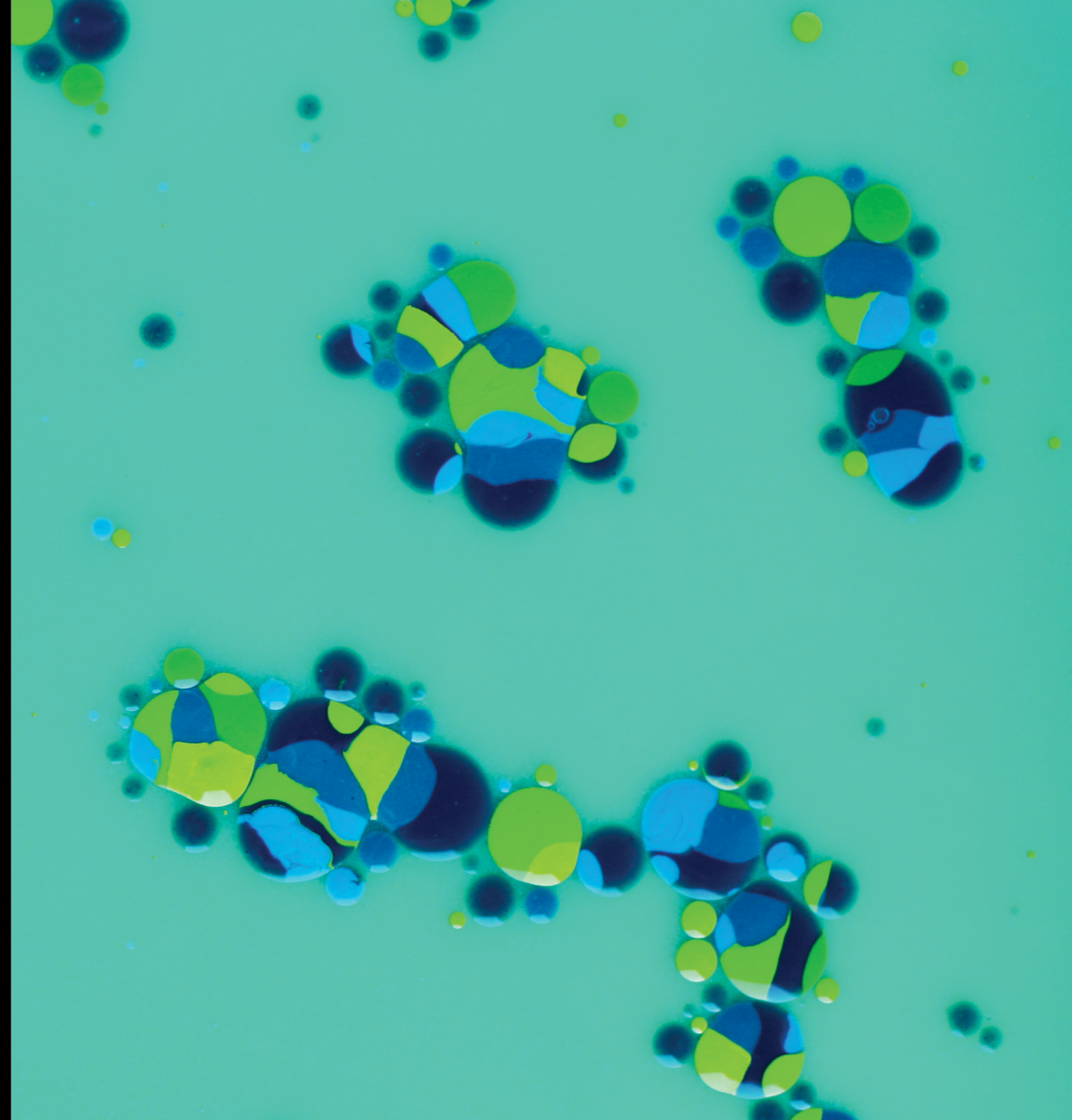
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ON THE GEOMETRY OF DEMIXING | MELISSA RINALDIN



Like a mixture of oil and water, lipid membranes separate into two liquid phases. While it is known that on a flat surface coexisting liquid phases result in the formation of circular domains, little is known about liquid-liquid phase separation on curved surfaces. In this thesis, a collection of experimental tools are offered to unravel this problem. Novel model systems in vitro consisting of supported lipid bilayers, or bilayers stabilised on solid substrates, are developed by using colloidal particles and micro-printed structures. In this way, both the composition and the geometry of the membrane can be controlled allowing for a direct comparison with simulation and theory.

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