**Emerging Electrohydrodynamic Approaches for Versatile Bioactive 3D Interfaces**

Menglin Chen1

1, Aarhus University, Aarhus, 8000, Denmark

The significance of the overall fibrillar and porous nanoscale topography of the extracellular matrix (ECM) in promoting essential cellular processes has led to consideration of biomaterials with nanofibrous features. Of the many methods for fabricating fibers with micrometer and nanometer diameters, electrospinning is simplest, most straightforward and cost-effective. Fibers are produced by forcing a polymer melt or solution through a spinneret in the presence of a high electric field. This approach becomes intriguingly powerful when remarkable morphological features such as very large surface area to volume ratio and porosity are combined with unique chemical, physical, or mechanical functionalisation by adding desired components with ease and control.1 Our current research focuses on exploring new possibilities to fabricate three-dimensional Nano-biointerfaces that synergise the nanostructural induction with biophysical and biochemical signals to modulate cellular behaviours, such as cell adhesion and migration, proliferation and stem cell differentiation.2,3 The biomimetic nanofibers that are responsive to external stimuli, such as temperature, pH, light, and electric/magnetic field were also developed for therapeutic delivery and intervention.

1. Taskin, MB; Xu, R; Gregersen, H; Nygaard, JV; Besenbacher, F; **Chen, M**\*, **ACS Applied Materials & Interfaces, 2016**. 8, 15864
2. Zhang Z; Wang, Z; Dong, M; Cui, B; **Chen, M**\*, **ACS Applied Materials &Interfaces**, **2017**, 9, 34736
3. Xu R; Zhang Z; Toftdal M; Møller A.C.; Dagnaes-Hansen, F; Dong, M; Thomsen, JS; Brüeld, A; **Chen, M\*, Journal of Controlled Release**, **2019**, 301, 129