

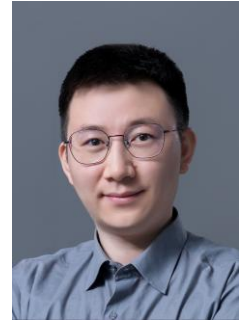


## SEMINAR

### Intelligent Living Biointerfaces for Neurovascular Regeneration

**Date:** 21 November, 2025 (Friday)  
**Time:** 3:30 p.m.  
**Venue:** Room 7-34, Haking Wong Building  
HKU

**Speaker:** Professor Qilong Zhao  
Institute of Biomedical and Health Engineering  
Shenzhen Institute of Advanced Technology (SIAT)  
Chinese Academy of Sciences (CAS)  
Shenzhen, China



#### Abstract:

Synergistic vascular and neural repair is a significant challenge in tissue engineering and regenerative medicine. Strategies utilizing exosomes have garnered considerable attention. However, their efficacy is limited by short lifespans (24–48 hours), low yields, and the static nature of functional miRNAs, which hinders their application throughout the entire repair process. Our studies have focused on biointerfaces for neurovascular regeneration. Recently, we developed an intelligent living biointerface comprising a ferroelectric polymer composite layer and a mesenchymal stem cell (MSC) layer. This interface leverages topological and electrical cues from the composite to direct MSC behaviour, enabling sustained exosome release (up to ~192 hours) with an approximate 8-fold increase in yield. Furthermore, it dynamically regulates the miRNA profile of the released exosomes according to different repair phases, effectively promoting synergistic vascular and neural regeneration *in vivo*.

#### Biography:

Qilong Zhao is an Associate Professor at the Shenzhen Institute of Advanced Technology (SIAT), Chinese Academy of Sciences (CAS). He is a member of the CAS Youth Innovation Promotion Association. His research focuses on biointerface and tissue engineering. He has published over 50 papers in high-impact journals including *Matter*, *Advanced Functional Materials*, and *National Science Review*, and holds 10 authorized patents. He was recognized as a 2023 Nanoscale Emerging Investigator.

ALL INTERESTED ARE WELCOME

For further information, please contact Prof. Min Wang at 3917 7903.