

Active soft matter under gradients

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Soft matter is known for its sensitivity to external gradients. In this presentation, we report two special cases of soft matters under gradients, one is time-dependent thermal gradient in a polymer solution and the other is self-generated unknown gradient around a Janus particles. In the polymer solution, we discover a flow without normal moment transfer in a time-dependent thermal gradient. And in the Janus particle system, we observe a surface dependent motion under chemical reactions. In both cases, we find that active process relating to energy dissipation instead of external force seems to be the key to understand these processes.