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The fast homogeneous diffusion of hydrogel under different stimuli

Shoujing Zheng , Ziqian Li , Zishun Liu

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Highlights

- The theory that can predict the kinetic behavior of hydrogel during diffusion is developed.
- Three cases of hydrogel diffusion driven by chemical potential, temperature and hydraulic pressure are studied respectively.
- The time histories of water content and the hydrostatic stress are obtained for chemical potential and temperature driven cases. The time history of water content under different hydraulic pressures is obtained.
- The corresponding experiments have been conducted and the comparison between the experimental results and the theoretical prediction using the theory has been made.

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