

1020-35-87

Bo Su* (bosu@iastate.edu), Department of Mathematics, Iowa State University, 490 Carver Hall, Ames, IA 50011. *Homogenizations in applied PDEs.*

We are interested in homogenization process of PDEs arised in cell biology and rheology. In applications, the physical or biological domain is highly irregular. Case 1: endoplasmic reticulum in single cell is very reticulated so that the diffusion of IP3 from cell membrane can not be directly simulated; Case 2: the micro-packaging process of computer chip is very delicate and highly reticulated micro-packaging material is made of polymer nanocomposite to make sure computer chip is pollution-free. It is important to measure the strain-stress of polymer nanocomposite. Here we pass to the homogenization limit by identifying the corresponding effective equations. (Received August 17, 2006)