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**Razvan Ceuca, Jamie Taylor and Arghir Dani Zarnescu\***, Basque Center for Applied Mathematics, Alameda Mazarredo 14, 48009 Bilbao, Spain. *Nematic liquid crystals surface energies obtained through a homogenisation procedure*. Preliminary report.

We study the effect of boundary rugosity in nematic liquid crystalline systems. We consider a highly general formulation of the problem, able to simultaneously deal with several liquid crystal theories. We use techniques of Gamma convergence and demonstrate that the effect of fine-scale surface oscillations may be replaced by an effective homogenised surface energy on a simpler domain. The homogenisation limit is then quantitatively studied in a simplified setting, obtaining convergence rates. (Received August 20, 2021)