

Onsager Principle

- A Principle Useful in Soft Matter Physics -

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In the celebrated paper on the reciprocal relation for the kinetic coefficients in irreversible processes, Onsager extended Rayleigh's principle of the least energy dissipation to general irreversible processes. The principle has been shown to be useful in deriving basic equations which describe non-linear and non-equilibrium phenomena in soft matter[1, 2]. Here I will show that the principle is useful in getting an approximation solutions[3]. Examples are given from our recent researches on negative normal stress of gels[4,5], vapour induce droplet-motion [6], drying of colloidal suspensions[7] and beads-on-string configuration in fiber spinning[8] etc.

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