

## **Fluctuation-induced interaction of neutrons with metal or dielectric surfaces**

Searching for an example of the elusive repulsive dispersion force we study the interaction of a neutron with a metal or dielectric plate. By using macroscopic quantum electrodynamics and perturbation theory we examined the position-dependent potential of the magnetizable neutron in front of a plate with arbitrary dielectric properties. We indeed find a purely repulsive dispersion interaction whose amplitude is very sensitive to the model used for the plate permittivity. We discuss how this potential could be verified in a neutron-interference experiment.