

Anomalous Effect of Surface Diffusion on NMR Signal in Restricted Geometry

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The diffusion of magnetic molecules along the surface of restricted media and the coupling of the surface and the bulk translational motions can strongly modify the echo attenuation NMR signal in the pulse field gradient measurements. The origin of this strong effect is the change of the symmetry of the lowest diffusion eigenmode of the system. We illustrate the effect of surface diffusion for cylindrically symmetric system. We find the parameters of the system under which the anomalous behavior of echo signal can be observed.