

Diffusion MR: from fundamentals to applications in food science

Sensitizing the MR signal to diffusional motion of molecules provides a means to probe length scales not achievable by conventional MR imaging methods. In this talk, I will discuss several diffusion techniques with potential use in food science. Specifically, in heterogeneous specimens, molecules of one kind, occupying isolated sections of another, undergo restricted diffusion. The physical properties of the resulting heterogeneous medium critically depends on the globule sizes. I will demonstrate how the distribution of globule sizes can be quantified from diffusion MR acquisitions. In the second part of the talk, I will discuss the double pulsed field gradient experiments and demonstrate its ability to provide information about the size and shape of the compartments without the need to employ very large gradient strengths.