

## **A Different Way of Studying the Structures of Soft Materials using Neutrons**

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Small Angle Neutron Scattering (SANS) is a powerful technique for studying the structures of materials including soft systems such as colloids, emulsions and polymers. The method yields information in the form of a Fourier transform of the density autocorrelation function. A different neutron scattering technique, which I will focus on in this talk, can give information about density correlations in real space. The method, called Spin Echo Small Angle Neutron Scattering (SESANS) has a number of other useful features including an ability to access larger length scales than SANS (up to 25 microns in favorable cases), automatic accounting for multiple neutron scattering and an insensitivity to a common cause of background in SANS measurements (incoherent neutron scattering). I will show examples of the use of the method to spatially isolate correlations in a colloid subjected to depletion forces and to probe the organization of colloidal particles between closely spaced parallel walls.