**Read this first**

Hi all,

I have attached several papers that in some cases get rather complex, so I suggest you have a look at them in the following order:

1. Nohe and Petersen Bioessays 2003 – this is a general description of why we are interested in these types of analyses
2. Petersen (1993) ICS – this is our first description of the autocorrelation analysis and introduces some of the mathematics and the FFT rationale
3. Chapter 16-Petersen2 or Nohe et al Faraday Disc 2002 – these papers are reviews that cover the general principles of the auto and cross correlations analyses.
4. Wiseman (2007) review – describes the state of the art of two-image analysis processes in spatial and temporal collections (it describes a number of time dependent calculations as well – which is not part of what we are currently doing, but could be an add-on later)

The triple correlation concept has been introduced in the literature in the temporal domain only so far – there are two papers to look at

1. Heinze, Jahnz, Schwille Coincidence Analysis – this introduces the concepts of using higher order correlations – but does not calculate the correlation functions, just the coincidence points (which is the related to the amplitude of the correlation functions)
2. Jp208605z-triple correlation spectroscopy and jp208605z\_si\_001-Williamson Supporting Information – this is a paper that describes how to calculate the triple correlation in temporal domains and some of the tricks associated with that. It may or may not be useful but it does validate the approach in principle.
3. Lohmann and Wirnitzer Triple Correlations – this is the paper that allows us to use the fast-Fourier transform methodology to calculate the triple correlation function and it describes the concept of the bispectrum and what it might look like.

I hope this is some of what you need – it is heavy in the math and the physics at time, but we can discuss how much of that you are interested in understanding as the project proceeds.

Nils