
Subject: Re: Degree of Polarization

Posted by [russell.grew](#) on Fri, 03 Oct 2008 00:37:13 GMT

[View Forum Message](#) <> [Reply to Message](#)

Hi Nicola,

Firstly, John Samson's polarization papers generally scare me.
However, in this instance the DOP doesn't look too hard to code.
Assuming you are talking about eqn (17) you just make the spectral matrix S from your signals and find the trace of it etc.

Which aspect of it is giving you grief?

Assuming you have a 3 component signal with components, x , y and z , take FFT of each component then calculate spectral matrix terms, eg: $S_{xy} = X(w) * \text{conjugate}(Y(w))$. Obviously there is a bit more to it in terms of windowing (& window compensation) and time averaging of data and/or smoothing.

There are other less mathematical approaches to polarization (eg: equation 5 in Fowler et al., JGR 1967) that might be useful. Also Section 10.8 in Born & Wolf, Principles of Optics gives good background on the spectral matrix and details on using the Stokes parameters for the polarization analysis (as opposed to the Spectral matrix).

Good luck!

Russell.
