**THE GENERAL THEORY OF PHASE SHIFTING ALGORITHMS**

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**Abstract:**

We have been reporting several new techniques of analysis and synthesis applied to Phase Shifting Interferometry (PSI). These works are based upon the Frequency Transfer Function (FTF) and how this new tool of analysis and synthesis in PSI may be applied to obtain very general results, among them; rotational invariant spectrum; complex PSI algorithms synthesis based on simpler first and second order quadrature filters; more accurate formulae for estimating the detuning error; output-power phase noise estimation. We have made our cases exposing these aspects of PSI separately. Now in the light of a better understanding provided by our past works we present and expand in a more coherent and holistic way the general theory of PSI algorithms. We are also providing herein new material not reported before. These new results are on; a well defined way to combine PSI algorithms and recursive linear PSI algorithms to obtain

resonant quadrature filters.

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