

## Memo

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**To:** JPL Document Review  
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**Re:** enclosed abstract and text

I am attaching the abstract of an oral I plan to submit to the SPIE conference indicated on the accompanying Form 1130. This presentation will eventually be published in the conference proceedings.

This presentation is the result of work I have completed for the Next Generation Space Telescope (NGST) program at JPL. For your convenience, I am enclosing a copy of a NASA technical memo I am preparing on the same subject. I expect that this memo will be very similar in content to the SPIE presentation and paper. Hopefully this will assist your review of the SPIE material.

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### **Abstract:**

#### NGST High Dynamic Range Unwrapped Phase Estimation

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We report on an algorithm enabling estimation of high dynamic range pupil phase without wrapping ambiguity. This algorithm was developed and validated using the NGST Wavefront Control Testbed (WCT-1), which permits introduction of aberrations and subsequent correction using 2 deformable mirrors. The algorithm is an extension of a Modified Gerchberg-Saxton iterative technique that incorporates both an evolving trial estimate as well as intermediate unwrapping. We will discuss results from WCT-1 that illustrate phase estimation when varying degrees of aberration are introduced.

Biography:

David Cohen is a member of the wavefront sensing and control team of the Next Generation Space Telescope at JPL, where he also works in the areas of optical modeling and metrology. In addition his interests include laser engineering and biomedical optics. He received his doctoral degree in electrical engineering from Cornell University in 1995.