

Adaptive optics for direct laser writing with plasma emission aberration sensing: erratum

Alexander Jesacher,¹ Graham D. Marshall,² Tony Wilson,¹
and Martin J. Booth^{1,*}

¹Department of Engineering Science, University of Oxford, Parks Road, Oxford, OX1 3PJ, UK

²Centre for Ultrahigh bandwidth Devices for Optical Systems (CUDOS), MQ Photonics
Research Centre, Dept. of Physics and Engineering, Macquarie University, NSW 2109,
Australia

[*Martin.Booth@eng.ox.ac.uk](mailto:Martin.Booth@eng.ox.ac.uk)

Abstract: We provide new expressions for equations that were incorrectly presented in a recent paper [Opt. Express **18**, 656 (2010)].

© 2010 Optical Society of America

OCIS codes: (090.1000) Aberration compensation; (140.3390) Laser materials processing; (130.2755) Glass waveguides; (250.5300) Photonic integrated circuits.

References and links

1. A. Jesacher, G. D. Marshall, T. Wilson, and M. J. Booth, "Adaptive optics for direct laser writing with plasma emission aberration sensing," Opt. Express **18**, 656–661 (2010).

In our recent paper [1], we described in Eq. (3) a defocus phase function $S(\rho)$ that included two constants M and N . The expressions for the constants, as presented in Eqs. (4) and (5) were incorrect. The correct expressions are:

$$M = \frac{2}{3} \frac{n_2^2}{NA^2} \left[1 - \left(1 - \frac{NA^2}{n_2^2} \right)^{\frac{3}{2}} \right], \quad (1)$$

$$N = \left(1 - M^2 - \frac{1}{2} \frac{NA^2}{n_2^2} \right)^{\frac{1}{2}}. \quad (2)$$

The modified spherical aberration function $\hat{\Phi}_{SA}$ is then obtained as:

$$\hat{\Phi}_{SA}(\rho) = \Phi_{SA}(\rho) - x S(\rho) \quad (3)$$

where x is chosen to minimise the RMS value of $\hat{\Phi}_{SA}$. We note that the other results presented in the paper were not affected by this editing error.