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**4. TITLE AND SUBTITLE**

The Non-Mechanical Beam Steering of Light in Reflective Inverse Diffusion

**5a. CONTRACT NUMBER**

**5b. GRANT NUMBER**

**5c. PROGRAM ELEMENT NUMBER**

**5d. PROJECT NUMBER**

**5e. TASK NUMBER**

**5f. WORK UNIT NUMBER**

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**14. ABSTRACT**

Wavefront shaping is a technique which uses spatial light modulators (SLMs) to impart desired phase fronts on a beam. When incident on a rough surface, beams with properly conjugated phase fronts refocus after reflection. This effect is called reflective inverse diffusion. Current wavefront shaping algorithms require the calculation of different SLM phase fronts to create a focused spot at different positions. A new alternative method is presented which reuses redundant phase information in a single phase front to focus to multiple spots. By creating phase tilts in the electric field at the rough surface, the reflected beam is non-mechanically steered at the cost of a decreased spot brightness for larger displacements.

**15. SUBJECT TERMS**

Spatial Light Modulators, Inverse Diffusion, Non-Mechanical Beam Steering, Reflection Matrices, Dual Photography

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