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(54) **IMAGING SYSTEM WITH OPTIMIZED EXTENDED DEPTH OF FOCUS**

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See application file for complete search history.

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(57) **ABSTRACT**

An optical processor is presented for applying optical processing to a light field passing through a predetermined imaging lens unit. The optical processor comprises a pattern in the form of spaced apart regions of different optical properties. The pattern is configured to define a phase coder, and a dispersion profile coder. The phase coder affects profiles of Through Focus Modulation Transfer Function (TFMTF) for different wavelength components of the light field in accordance with a predetermined profile of an extended depth of focusing to be obtained by the imaging lens unit. The dispersion profile coder is configured in accordance with the imaging lens unit and the predetermined profile of the extended depth of focusing to provide a predetermined overlapping between said TFMTF profiles within said predetermined profile of the extended depth of focusing.

13 Claims, 7 Drawing Sheets