

METHOD AND SYSTEM FOR MASKLESS LITHOGRAPHY REAL-TIME
PATTERN RASTERIZATION AND USING COMPUTATIONALLY
COUPLED MIRRORS TO ACHIEVE OPTIMUM FEATURE
REPRESENTATION

ABSTRACT OF THE DISCLOSURE

A method and system for determining specific pixel modulation states of a spatial light modulator (SLM) to print a desired pattern on a substrate are disclosed. The method includes selecting at least one super-pixel in an object plane of the desired pattern, the super-pixel being formed of at least two pixels. At least one edge of the desired pattern crosses a boundary within the super-pixel, the at least one edge being defined by specific slope and position parameters relative to the super-pixel. The method also includes (i) forming an interpolation table to tabulate pre-calculated pixel modulation states and (ii) determining the specific pixel modulation states for each of the pixels in accordance with the interpolation table. Disclosed also are a method and system for providing a spatial light modulator (SLM). The SLM includes a plurality of mirrors structured to form groups of super-pixels. Each super-pixel (i) includes two or more mirrors from the plurality of mirrors and (ii) is configured to switch only one pixel of light. Each of the two or more mirrors can be separately actuated.

Figure 2