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**Chen et al.**

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(54) **DIFFERENTIAL FILTERING CHROMATIC CONFOCAL MICROSCOPIC SYSTEM**

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(58) **Field of Classification Search**  
None  
See application file for complete search history.

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(57) **ABSTRACT**

A differential filtering chromatic confocal microscopic system comprises a chromatic dispersion objective for receiving and axially dispersing a broadband light from a light source and projecting dispersed lights onto an object thereby forming an object light reflected therefrom; an optical modulation module for dividing the object light into a first and a second object lights; a pair of optical intensity sensing module, respectively having a spatial filter with a different pinhole diameter or a slit width from each other, for detecting the first and second object lights, thereby obtaining a plurality of first and second optical intensity signals; and a signal processor for respectively processing the plurality of first and second optical intensity signals thereby obtaining a plurality of differential rational values of optical intensity and determining a corresponding object depth associated with each differential rational value according to a relation between signal intensity ratio and object surface depth.

**12 Claims, 24 Drawing Sheets**

