

[0142] FIG. 10 is a schematic representation of a third illustrative embodiment of the CLC-based spectral filtering structure shown in FIG. 2, wherein each red subpixel structure therein is realized by a green-band reflecting region in the first CLC layer and a blue band reflecting region in the second CLC layer, wherein each green subpixel structure therein is realized by a green-red band reflecting region in the first CLC layer and a clear (non-reflecting) region in the second CLC layer, wherein each blue subpixel structure therein is realized by a red band reflecting region in the first CLC layer and a green-band reflecting region in the second CLC layer, and a green-blue band reflecting pattern and quarter-wave retardation surface thereover are provided beneath the first CLC layer in order to realize the broad-band inter-subpixel “white” reflective matrix-like pattern between neighboring subpixel regions;

[0143] FIG. 10A is a schematic representation of an exemplary broad-band inter-subpixel “white” reflective matrix-like pattern formed about a single pixel structure (comprising red, green and blue subpixel structures) disposed beneath the lower CLC-filter layer of the CLC-based spectral filtering structure depicted in FIG. 10

[0144] FIG. 11 is a schematic representation of a fourth illustrative embodiment of the CLC-based spectral filtering structure shown in FIG. 2, wherein each red subpixel structure therein is realized by a clear (non-reflecting) region in the first CLC layer and a blue-green band reflecting region in the second CLC layer, wherein each blue subpixel structure therein is realized by a green-red band reflecting region in the first CLC layer and a clear (non-reflecting) region in the second CLC layer, wherein each green subpixel structure therein is realized by a red band reflecting region in the first CLC layer and a blue-band reflecting region in the second CLC layer, and a broad-band reflecting pattern and quarter-wave retardation surface thereover are provided beneath the first CLC layer in order to realize the broad-band inter-subpixel “white” reflective matrix-like pattern between neighboring subpixel regions;

[0145] FIG. 11A is a schematic representation of an exemplary broad-band inter-subpixel “white” reflective matrix-like pattern formed about a single pixel structure (comprising red, green and blue subpixel structures) disposed beneath the lower CLC-filter layer of the CLC-based spectral filtering structure depicted in FIG. 11;

[0146] FIG. 12A is a schematic representation illustrating a first method of fabricating the two-layer CLC-based spectral filtering structure shown in FIGS. 11 and 11A;

[0147] FIG. 12B is a schematic representation final structure produced when using the first method of spectral filter fabricating illustrated in FIG. 12A;

[0148] FIG. 13 is a schematic representation of a fifth illustrative embodiment of the CLC-based spectral filtering structure shown in FIG. 2, wherein each red subpixel structure therein is realized by a clear (non-reflecting) region in the first CLC layer and a blue-green band reflecting region in the second CLC layer, wherein each blue subpixel structure therein is realized by a green-red band reflecting region in the first CLC layer and a clear (non-reflecting) region in the second CLC layer, wherein each green subpixel structure therein is realized by a red band reflecting region in the first CLC layer and a blue-band reflecting region in the second

CLC layer, and a broad-band inter-subpixel “white” matrix-like pattern is integrally-embodied within the spectral filtering structure, between neighboring subpixel regions, by virtue of (i) the spatially-overlapping green-red band reflecting regions in the first CLC layer and the blue-green band reflecting regions in the second CLC layer, and also (ii) the spatially-overlapping green-red band reflecting regions in the first CLC layer and the blue band reflecting regions in the second CLC layer;

[0149] FIG. 13A is a schematic representation of the 2-D spatial layout of an exemplary broad-band inter-subpixel “white” matrix-like pattern integrally-embodied within the CLC-based spectral filtering structure depicted in FIG. 13;

[0150] FIG. 14 is a schematic representation illustrating a first method of fabricating the two-layer CLC-based spectral filtering structure shown in FIG. 13;

[0151] FIG. 15 is a schematic representation illustrating a second alternative method of fabricating the two-layer CLC-based spectral filtering structure shown in FIGS. 13 through 13, which enables the realization of an integrally-embodied broad-band inter-subpixel “white” matrix-like pattern only among the subpixels of each pixel structure, but not between all neighboring pixel structures within the CLC-based spectral filtering structure;

[0152] FIG. 16A is a perspective schematic representation of a sixth illustrative embodiment of the CLC-based spectral filtering structure shown in FIG. 2, wherein the subpixel structures of each pixel structure therein are arranged in a 2x2 array;

[0153] FIG. 16B is a schematic representation of one pixel structure in the first (i.e. bottom) CLC layer of the CLC-based spectral filtering structure of FIG. 16A, showing the 2-D spatial layout of the individual subpixel structures contained therein;

[0154] FIG. 16C is a schematic representation of one pixel structure in the second (i.e. top) CLC layer of the CLC-based spectral filtering structure of FIG. 16A, showing the 2-D spatial layout of the individual subpixel structures contained therein;

[0155] FIG. 16D is a schematic representation of light output from the subpixel structures contained in one pixel structure in the CLC-based spectral filtering structure of FIG. 16A;

[0156] FIG. 17A is a perspective schematic representation of a seventh illustrative embodiment of the CLC-based spectral filtering structure shown in FIG. 2, wherein the subpixel structures of each pixel structure therein are arranged in a 2x2 array;

[0157] FIG. 17B is a schematic representation of one pixel structure in the first (i.e. bottom) CLC layer of the CLC-based spectral filtering structure of FIG. 17A, showing the 2-D spatial layout of the individual subpixel structures contained therein;

[0158] FIG. 17C is a schematic representation of one pixel structure in the second (i.e. top) CLC layer of the CLC-based spectral filtering structure of FIG. 17A, showing the 2-D spatial layout of the individual subpixel structures contained therein;