

- a broad-band polarizer, cooperating with said array of polarization modifying elements, so as to modulate the spatial intensity of said produced distribution of polarized light and thereby produce a dark-type or bright-type intensity level at each said subpixel region along said broad-band polarizer; and
- a spectral filtering structure having a pixelated array of pass-band reflective-type spectral filtering elements for spectrally filtering said polarized light, each said pass-band reflective-type spectral filtering element being spatially registered with one said subpixel region and tuned to one said predefined spectral band for transmitting only the spectral components of said polarized light having wavelengths within said predefined spectral band of said subpixel region, and reflecting the spectral components of said produced polarized light having wavelengths outside said predefined spectral band of said subpixel region so as to produce a predefined color value at said subpixel region spatially-registered with said pass-band reflective-type spectral filtering element;
- a pattern of broad-band reflector material, in spatial registration with the backside of said light blocking portions of said subpixel regions, for reflecting produced light at the light blocking portions of said subpixel regions;
- a pattern of broad-band absorption material, in spatial registration with the frontside of said light blocking portions of said subpixel regions, for absorbing ambient light incident upon said light blocking portions of said subpixel regions;
- wherein, the spectral components of polarized light that are transmitted through said broad-band reflective polarizer along said prespecified direction contribute to said distribution of polarized light;
- wherein, the spectral components of polarized light that are not transmitted through said broad-band reflective polarizer along said prespecified direction are reflected off said broad-band reflective polarizer and transmitted back towards said broad-band reflector for reflection and/or polarization conversion within said backlighting structure and retransmission through said broad-band reflective polarizer so as to contribute to said distribution of polarized light;
- wherein, the spectral components of said polarized light that are transmitted through the pass-band reflective-type spectral filtering element at each said subpixel region within each said spatially-encompassing pixel region produce said predefined color value at said subpixel region; and
- wherein, the spectral components of said polarized light that are not transmitted through the pass-band reflective-type spectral filtering element at each said subpixel region within each said spatially-encompassing pixel region are reflected off said pass-band reflective-type spectral filtering element and transmitted back towards said backlighting structure for reflection and/or polarization conversion and retransmission towards the other said subpixel regions within said spatially-encompassing pixel region in said spectral filtering structure;
- wherein, the spectral components of said produced polarized that fall incident on the light blocking portions of said subpixel regions are reflected off said pattern of broad-band reflector material disposed thereon, and transmitted back towards said backlighting structure for reflection and/or polarization conversion and retransmission towards the other said subpixel regions within said spatially-encompassing pixel region in said spectral filtering structure;
- wherein, the spectral components of ambient light falling incident upon the light blocking portions of said subpixel regions are absorbed by said pattern of broad-band absorption material disposed thereon, thereby reducing glare from said image display panel due to ambient light incident thereon;
- whereby said color images are produced from said predefined image display area having enhanced brightness.
- 78.** The image display panel of claim 77, wherein said pass-band reflective-type spectral filtering structure is disposed between said backlighting structure and said spatial intensity modulation structure.
- 79.** The image display panel of claim 78, wherein said plurality of subpixel regions within each said spatially-encompassing pixel region comprise a "red" subpixel region having a "red" pass-band, a "green" subpixel region having a "green" pass-band, and a "blue" subpixel region having a "blue" pass-band.
- 80.** The image display panel of claim 78, wherein each said pass-band reflective-type spectral filtering element is an optical element made from a material selected from the group consisting of liquid crystal material, holographic-type material, and interference-type material.
- 81.** The image display panel of claim 78, wherein each said polarization modifying element is an optical element made from liquid crystal material.
- 82.** The image display panel of claim 78, wherein said backlighting structure further comprises
- a light guiding panel disposed between said broad-band reflector and said broad-band reflective polarizer for guiding said produced light over said predefined image display area.
- 83.** The image display panel of claim 78, wherein said first polarization state is a first linear polarization state and said second polarization state is a second linear polarization state orthogonal to said first linear polarization state.
- 84.** The image display panel of claim 78, wherein said first polarization state is a first circular polarization state and said second polarization state is a second circular polarization state orthogonal to said first circular polarization state.
- 85.** The image display panel of claim 78, said broad-band reflector is a quasi-diffusive reflector.
- 86.** The image display panel of claim 77, wherein said spatial intensity modulation structure is disposed between said backlighting structure and said spectral filtering structure-subpixel regions within each said spatially-encompassing pixel region comprise a "red" subpixel region having a