

**120.** A wide incident angle reflective broadband polarizer as in claim 116 wherein:

a second constant pitch helix cholesteric liquid crystal film for rotating the elliptical axis of light from the first varying pitch helix cholesteric liquid crystal film, adjacent the first varying pitch helix cholesteric liquid crystal film,

a second homeotropic film for compensating the phase of the light from the second constant pitch helix cholesteric liquid crystal film, adjacent the second constant pitch helix cholesteric liquid crystal film such that unpolarized light incident on either homeotropic film of the wide incident angle broadband polarizer is transmitted as circularly polarized light of one handedness for small and large angles of incidence and reflected as circularly polarized light of the opposite handedness for small and large angles of incidence.

**121.** A wide incident angle reflective broadband polarizer as in claim 119 wherein:

the wide angle broadband polarizer of claim 119 is encased in a block of transparent material diagonally to form a prism such that unpolarized light incident on one prism face will be transmitted as circularly polarized light of one handedness and reflected as circularly polarized light of the opposite handedness perpendicular to the transmitted light.

**122.** A wide incident angle reflective broadband polarizer as in claim 121 wherein:

a prism of claim 121 having varying pitch helix cholesteric liquid crystal film for reflecting and transmitting circularly polarized light over a broadband of wavelengths of one handedness is adjacent to,

a prism of claim 121 having a varying pitch helix cholesteric liquid crystal film for reflecting and transmitting circularly polarized light over a broadband of wavelengths of the opposite handedness,

a mirror adjacent one of the prisms for changing the handedness of the reflected light and reflecting the reflected light to the prism with the opposite handedness for reflection in the same direction as the incident light such that incident unpolarized light converts totally to transmitted circularly polarized light of one handedness.

**123.** A wide incident angle reflective broadband polarizer as in claim 119 wherein,

a mirror placed parallel to the wide incident angle broadband polarizer,

a light source for producing unpolarized light is placed between the mirror and the wide incident angle broadband polarizer, such that light from the light source is polarized when it is transmitted through the wide incident angle broadband polarizer as circularly polarized light of one handedness.

**124.** A wide incident angle reflective broadband polarizer as in claim 123 wherein,

a quarter wave plate placed adjacent the wide incident angle broadband polarizer on the side opposite the mirror such that linearly polarized light from the quarter wave plate is chromatically stable at any viewing azimuthal and polar angle.

**125.** A wide incident angle reflective broadband polarizer as in claim 120 wherein:

the wide angle broadband polarizer of claim 120 is encased in a block of transparent material diagonally to form a prism such that unpolarized light incident on one prism face will be transmitted as circularly polarized light of one handedness and reflected as circularly polarized light of opposite handedness perpendicular to the transmitted light.

**126.** A wide incident angle reflective broadband polarizer as in claim 125 wherein:

a prism of claim 125 having varying pitch helix cholesteric liquid crystal film for reflecting and transmitting circularly polarized light over a broadband of wavelengths of one handedness is adjacent to,

a prism of claim 9 having a varying pitch helix cholesteric liquid crystal film for reflecting and transmitting circularly polarized light over a broadband of wavelengths of the opposite handedness,

a mirror adjacent one of the prisms for changing the handedness of the reflected light and reflecting the reflected light to the prism with the opposite handedness for reflection in the same direction as the incident light such that incident unpolarized light converts totally to transmitted circularly polarized light of one handedness.

**127.** A wide incident angle reflective broadband polarizer as in claim 130 wherein,

a mirror placed parallel to the wide incident angle broadband polarizer,

a light source for producing unpolarized light is placed between the mirror and the wide incident angle broadband polarizer, such that light from the light source is polarized when it is transmitted through the wide incident angle broadband polarizer as circularly polarized light of one handedness.

**128.** A wide incident angle reflective broadband polarizer as in claim 127 wherein,

a quarter wave plate placed adjacent the wide incident angle broadband polarizer on the side opposite the mirror such that linearly polarized light from the quarter wave plate is chromatically stable at any viewing azimuthal and polar angle.

**129.** A wide incident angle reflective broadband polarizer as in claim 116 wherein,

the homeotropic film is polymerizable.

**130.** A wide incident angle reflective broadband polarizer as in claim 116 wherein,

the constant pitch helix cholesteric liquid crystal film is polymerizable.

**131.** A wide incident angle reflective broadband polarizer as in claim 116 wherein,

incident unpolarized visible light is transmitted as circularly polarized light.

**132.** A wide incident angle reflective broadband polarizer as in claim 116 wherein,

incident unpolarized ultraviolet light is transmitted as circularly polarized light.