

Title (en)
PROJECTION SYSTEM BASED ON RECONFIGURABLE HOLOGRAPHIC OPTICS

Title (de)
AUF EINEM REKONFIGURIERBAREN HOLOGRAPHISCHEN OPTISCHEN SYSTEM BASIERENDES PROJEKTIONSSYSTEM

Title (fr)
SYSTEME DE PROJECTION FONDE SUR DES SYSTEMES OPTIQUES HOLOGRAPHIQUES POUVANT ETRE RECONFIGURES

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Application
EP 99933849 A 19990709

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Abstract (en)
[origin: WO0003309A1] A projection system (26; 60; 80; 88; 102; 122) and a method of displaying a projected input image on a projection screen (14; 30; 96; 104; 124) of the system utilize one or more reconfigurable holographic optical elements (HOEs) (42, 44, 46, 54, 56 and 58; 64, 66, 68 and 70; 98; 106 and 108; 126 and 128) to optically manipulate propagating light in the system. The reconfigurable HOEs may be configured to perform simple optical functions that are commonly associated with traditional optical devices, such as lenses, prisms and mirrors. However, the reconfigurable HOEs may also be configured to perform sophisticated optical manipulations, such as varying the light intensity toward a specific direction and generating virtual (holographic) images. Each reconfigurable HOE includes a hologram that is sandwiched between two electrode layers. The hologram is a holographic photopolymeric film that has been combined with liquid crystal. The hologram has an optical property that changes in response to an applied electrical field. The reconfigurable HOEs may be included in a color filter (38) of the system to selectively diffract tristimulus color lights to a display panel (40) in order to provide a color display of the input image that is projected onto the projection screen. The reconfigurable HOEs may also be included in a projection optics (34; 62) to magnify the projected image on the projection screen and/or redirect the projected image to form a tiled image on the projection screen. Furthermore, the reconfigurable HOEs may be used in the projection screen to vary the light intensity toward specific viewing positions. In one application, the reconfigurable HOEs in the projection screen allow the system to present the display image in a stereoscopic form.

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