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(54) **AN OPTICAL DEVICE CAPABLE OF PROVIDING A STRUCTURAL COLOR, AND A CORRESPONDING METHOD OF MANUFACTURING SUCH A DEVICE**

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# **ABSTRACT**

The present invention relates to an optical device having a nano-structured surface capable of providing a structural color to a normal human viewer, the device made being manufactured in one single material. A plurality of nano-structured protrusions (5) is further arranged with a first periodicity (P1) in a first direction and a second periodicity (P2) in a second direction, the first and second periodicity being chosen so that the optical reflection is dominated by specular reflection. The nano-structured protrusions are optionally arranged with a relative spatial randomness (SR) with respect to the average surface positions. The position, size, and randomness of the protrusions are arranged so as to provide, at least up to a maximum angle of incidence ( $A_{in}$ ) with respect to a normal to the surface, an angle-independent substantially homogeneous structural color perception for a normal human viewer, at least up to a maximum observation angle ( $A_{obs}$ ) with respect to a normal to the surface.

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