

Title (en)
LIGHT-SENSITIVE GLASS AND PROCESS FOR INSCRIBING STRUCTURES FORMED FROM VARIATIONS IN BULK REFRACTIVE INDEX IN SUCH A GLASS

Title (de)
LICHTEMPFFINDLICHES GLAS UND VERFAHREN ZUM EINSCHREIBEN VON AUS VERÄNDERUNGEN DES MASSEBRECHUNGSINDEXES GEBILDETEN STRUKTUREN IN SOLCH EINEM GLAS

Title (fr)
VERRE PHOTOSENSIBLE ET PROCEDE D'INSCRIPTION DE STRUCTURES DE VARIATION D'INDICE DE REFRACTION EN VOLUME DANS UN TEL VERRE

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Application
EP 21786252 A 20210920

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Abstract (en)
[origin: WO2022058694A1] The invention relates to a process for inscribing a three-dimensional structure formed from variations in refractive index in the bulk of a transparent oxide glass comprising silver ions by femtosecond-laser-beam irradiation, the method comprising: generating a laser beam made up of a series of ultra-brief light pulses of pulse duration shorter than the characteristic time of thermalization of the glass so as to achieve an excitation at the point of irradiation via multi-photon interaction; focusing said beam at a desired depth in the glass; irradiating point by point the glass with said beam so as to form the structure in the glass along a predetermined path, the number of pulses, the repetition rate of the pulses and the irradiance at each irradiation point being controlled to induce an accumulation of silver aggregates localised in an annular peripheral region around an irradiation point, said accumulation of aggregates generating a variation in refractive index in the annular peripheral region around the irradiation point, and to erase a variation in refractive index in a segment of an annular peripheral region generated around another irradiation point when said segment of the peripheral region coincides with a region of the laser beam.

IPC 8 full level
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