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(71) Applicant(s):

NIIGATA UNIVERSITY [JP/JP]; 8050, Ikarashi 2-no-cho, Nishi-ku, Niigata-shi, Niigata 9502181 (JP) *(for all designated states except US)*

BABA Akira [JP/JP]; c/o NIIGATA UNIVERSITY, 8050, Ikarashi 2-no-cho, Nishi-ku, Niigata-shi, Niigata 9502181 (JP) *(for US only)*

JANMANEE Rapihun [JP/JP]; c/o NIIGATA UNIVERSITY, 8050, Ikarashi 2-no-cho, Nishi-ku, Niigata-shi, Niigata 9502181 (JP) *(for US only)*

TADA Koji [JP/JP]; c/o NIIGATA UNIVERSITY, 8050, Ikarashi 2-no-cho, Nishi-ku, Niigata-shi, Niigata 9502181 (JP) *(for US only)*

SHINBO Kazunari [JP/JP]; c/o NIIGATA UNIVERSITY, 8050, Ikarashi 2-no-cho, Nishi-ku, Niigata-shi, Niigata 9502181 (JP) *(for US only)*

KATO Keizo [JP/JP]; c/o NIIGATA UNIVERSITY, 8050, Ikarashi 2-no-cho, Nishi-ku, Niigata-shi, Niigata 9502181 (JP) *(for US only)*

KANEKO Futao [JP/JP]; c/o NIIGATA UNIVERSITY, 8050, Ikarashi 2-no-cho, Nishi-ku, Niigata-shi, Niigata 9502181 (JP) *(for US only)*

(72) Inventor(s):

BABA Akira; c/o NIIGATA UNIVERSITY, 8050, Ikarashi 2-no-cho, Nishi-ku, Niigata-shi, Niigata 9502181 (JP)

JANMANEE Rapihun; c/o NIIGATA UNIVERSITY, 8050, Ikarashi 2-no-cho, Nishi-ku, Niigata-shi, Niigata 9502181 (JP)

TADA Koji; c/o NIIGATA UNIVERSITY, 8050, Ikarashi 2-no-cho, Nishi-ku, Niigata-shi, Niigata 9502181 (JP)

SHINBO Kazunari; c/o NIIGATA UNIVERSITY, 8050, Ikarashi 2-no-cho, Nishi-ku, Niigata-shi, Niigata 9502181 (JP)

KATO Keizo; c/o NIIGATA UNIVERSITY, 8050, Ikarashi 2-no-cho, Nishi-ku, Niigata-shi, Niigata 9502181 (JP)

KANEKO Futao; c/o NIIGATA UNIVERSITY, 8050, Ikarashi 2-no-cho, Nishi-ku, Niigata-shi, Niigata 9502181 (JP)

(74) Agent(s):

MATSUURA Yasuji; 2F, 17-19, Sakaisunayama 4-chome, Nishi-ku, Niigata-shi, Niigata 9502044 (JP)

(54) Title (EN): TRANSMITTED LIGHT CONTROL DEVICE

(54) Title (FR): DISPOSITIF DE COMMANDE DE LUMIÈRE TRANSMISE

(54) Title (JA): 透過光制御デバイス

(57) Abstract:

(EN): Provided is a transmitted light control device with which it is possible to control peak wavelength and peak intensity of transmitted light while having a sharp wavelength amplitude. A transmitted light control device (10) comprises: a grating substrate (1); a metal thin film (2); a conductive macromolecule layer (3) in which conductive macromolecules are accumulated upon the metal thin film (2); a cell (4) which is filled with a fluid medium (5) further comprising either an electrolyte or a buffer solution,

and wherein a portion of the fluid medium (5) makes contact with the conductive macromolecule layer (3); and a metal thin film potential control means (6) with an effect electrode (W) which is connected to the metal thin film (2), and a counter electrode (C) and a reference electrode (R) which are connected to the fluid medium (5). The substrate (1) and at least a portion of the cell (4) are made of a translucent material. By changing the potential of the metal thin film (2), the control means (6) changes the complex dielectric constant of the conductive macromolecule layer (3), and controls light which has passed through the conductive macromolecule layer (3).

(FR): L'invention concerne un dispositif de commande de lumière transmise avec lequel il est possible de commander une longueur d'onde pic et une intensité de pic de lumière transmise tout en ayant une amplitude de longueur d'onde étroite. Un dispositif de commande de lumière transmise (10) comprend : un substrat de réseau (1) ; un film mince métallique (2) ; une couche de macromolécules conductrices (3) dans laquelle des macromolécules conductrices sont accumulées sur le film mince métallique (2) ; une cellule (4) qui est remplie d'un milieu fluide (5) comprenant en outre soit un électrolyte, soit une solution tampon, et une partie du milieu fluide (5) faisant contact avec la couche de macromolécules conductrices (3) ; et un moyen de commande de potentiel de film mince métallique (6) avec une électrode d'effet (W) qui est reliée au film mince métallique (2) et une contre-électrode (C) et une électrode de référence (R) qui sont reliées au milieu fluide (5). Le substrat (1) et au moins une partie de la cellule (4) sont faits d'une matière translucide. Par changement du potentiel du film mince métallique (2), le moyen de commande (6) change la constante diélectrique complexe de la couche de macromolécules conductrices (3) et commande la lumière qui est passée dans la couche de macromolécules conductrices (3).

(JA): シャープな波長幅を有しながら透過光のピーク波長やピーク強度を制御可能な透過光制御デバイスを提供する。透過光制御デバイス10は、グレーティング基板1と、金属薄膜2と、金属薄膜2上に導電性高分子が堆積された導電性高分子層3と、電解質又は緩衝液からなる液体媒体5で満たされるとともに、かつ、該液体媒体5の一部が導電性高分子層3に接触したセル4と、金属薄膜2に作用電極Wが接続されるとともに、液体媒体5に対電極Cと参照電極Rとが接続された金属薄膜電位制御手段6と、を備える。基板1とセル4の少なくとも一部とは光透過性の材料で作られる。制御手段6は、金属薄膜2の電位を変化させることにより、導電性高分子層3の複素誘電率を変化させて、導電性高分子層3を透過した光を制御する。

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