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(84) 指定国 (除另有指明, 要求每一种可提供的地区保护): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ,

(54) Title: TRAVELING WAVE ELECTRODE MODULATOR AND PHOTONIC INTEGRATED CHIP

(54) 发明名称: 一种行波电极调制器及光子集成芯片

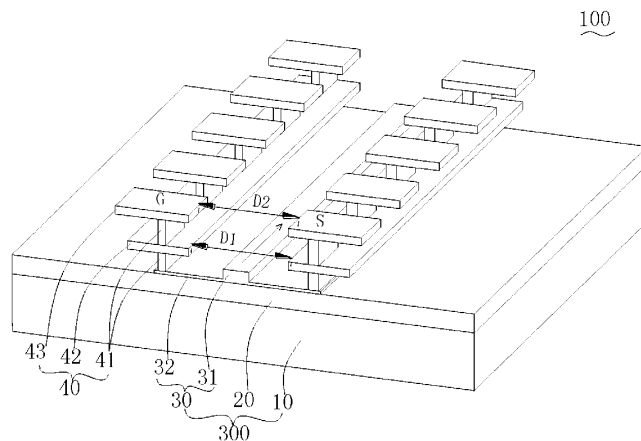


图 4

(57) Abstract: Disclosed are a traveling wave electrode modulator and a photonic integrated chip. The traveling wave electrode modulator comprises a silicon substrate, an optical waveguide and a doped transitional area provided within the silicon substrate, and a traveling wave electrode structure electrically connected to the transitional area. The traveling wave electrode structure comprises at least one layer of continuous electrode continuously extended in the direction of extension of the optical waveguide, a periodic electrode periodically alternating in the direction of extension of the optical waveguide, and an electrically-conductive structure. The continuous electrode is electrically connected to the periodic electrode via the electrically-conductive structure, and the traveling wave electrode structure is electrically connected to the transitional area via same. With the addition of the periodically designed electrode on the

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NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), 欧亚 (AM, AZ, BY, KG, KZ, RU, TJ, TM), 欧洲 (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG)。

根据细则4.17的声明：

- 关于发明人身份(细则4.17(i))
- 关于申请人有权申请并被授予专利(细则4.17(ii))
- 发明人资格(细则4.17(iv))

本国际公布：

- 包括国际检索报告(条约第21条(3))。

traveling wave electrode structure, a greater number of designable parameters are provided, the flexibility in the design of the traveling wave electrode structure is increased, and an increased degree of match is provided between the propagation speed of magnetic waves and the propagation speed of light waves, thus effectively increasing the electro-optical modulation bandwidth of the modulator.

(57) 摘要：本申请公开了一种行波电极调制器及光子集成芯片，该行波电极调制器包括硅基板、设于硅基板内的光波导和掺杂的过渡区，以及与过渡区电连接的行波电极结构；该行波电极结构包括至少一层沿光波导延伸方向连续延伸的连续电极和至少一层沿光波导延伸方向周期性变化的周期性电极，以及导电结构；该连续电极和周期性电极之间、以及行波电极结构和过渡区之间通过导电结构相电连接。在行波电极结构上增加了周期性设计的电极，具有更多可设计的参数，提高了行波电极结构设计的灵活性，可使电磁波的传播速度与光波的传播速度具有更高的匹配度，从而可有效提高调制器的电光调制带宽。