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Patent Number(s): WO2012057710-A1
Title: THz photomixer emitter used for emitting THz wave for use e.g. in THz spectroscopy includes electrode array having electric field resonance pattern, which is aligned with emission field pattern antenna structure
Inventor Name(s): TENG J; TANOTO H; WU Q Y S
Patent Assignee(s): AGENCY SCI TECHNOLOGY&RES (SGST)
Derwent Primary Accession No.: 2012-F09618
Abstract: NOVELTY - THz photomixer emitter comprises photoconductive material; antenna structure; and electrode array disposed such that an electric field associated with photocarriers generated in the photoconductive material is coupled to the antenna for emission THz wave via the antenna structure. An electric field resonance pattern the electrode array is aligned with an emission field pattern the antenna structure.
USE - The THz photomixer emitter is used for emitting THz wave (claimed). It is a photoconductive antenna photomixing THz emitter used for emitting continuous wave THz wave e.g. for THz spectroscopy and THz imaging; or for pulsed T-ray emission.
ADVANTAGE - The THz photomixer emitter has the ability to align the nano-antenna resonance direction to that the dipole oscillation; and enhanced electric field intensity in the active region photomixers that results in higher photocarrier density and hence higher THz wave emission efficiency, i.e. improved THz output power as compared to conventional interdigitated configurations. The electrode configurations facilitate surface plasmon excitation to enhance the localized electromagnetic field for more efficient optical absorption incident photons within the semiconductor regions in the electrodes gaps and more efficient THz emission.
DETAILED DESCRIPTION - An INDEPENDENT CLAIM is included for method emitting THz wave.
Drawing:
Derwent Class Code(s): W02 (Broadcasting, Radio and Line Transmission Systems)
Derwent Manual Code(s): W02-B05B1
IPC: H01L-031/0232; H01L-031/08; H01Q-021/06; H01Q-009/00; H01Q-009/27
Patent Details:

Patent Number	Publ. Date	Main IPC	Week	Page Count	Language
WO2012057710-A1	03 May 2012	H01L-031/0232	201232	Pages: 34	English

Application Details and Date:
WO2012057710-A1 WOSG000379 28 Oct 2011
Priority Application Information and Date:
US408099P 29 Oct 2010
Designated States:
WO2012057710-A1:
(National): AE; AG; AL; AM; AO; AT; AU; AZ; BA; BB; BG; BH; BR; BW; BY; BZ; CA; CH; CL; CN; CO; CR; CU; CZ; DE; DK; DM; DO; DZ; EC; EE; EG; ES; FI; GB; GD; GE; GH; GM; GT; HN; HR; HU; ID; IL; IN; IS; JP; KE; KG; KM; KN; KP; KR; KZ; LA; LC; LK; LR; LS; LT; LU; LY; MA; MD; ME; MG; MK; MN; MW; MX; MY; MZ; NA; NG; NI; NO; NZ; OM; PE; PG; PH; PL; PT; QA; RO; RS; RU; RW; SC; SD; SE; SG; SK; SL; SM; ST; SV; SY; TH; TJ; TM; TN; TR; TT; TZ; UA; UG; US; UZ; VC; VN; ZA; ZM; ZW