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Title: Terahertz emitter useful in a terahertz system, comprises a bulk dendrimer such as a functionalized dendrimer for generating terahertz radiation with a high pump-terahertz conversion efficiency and high output power, and a substrate

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Abstract: NOVELTY - The terahertz emitter comprises a bulk dendrimer such as a functionalized dendrimer for generating terahertz radiation with a high pump-terahertz conversion efficiency (greater than 1%) and high output power, and a substrate. The bulk dendrimer: is positioned on the substrate; has an enhanced electro-optic coefficient and a second order magnetic susceptibility resulting from poling induced dipole orientation; and contains an enhanced number dipole moments generated from poling at a high electric field at an elevated temperature.

USE - The terahertz emitter is useful in a terahertz system (claimed).

ADVANTAGE - The high power, portable terahertz emitter exhibits high reliability and quality, reduced energy consumption and improved susceptibility, and enhances the performance the terahertz system.

DETAILED DESCRIPTION - The terahertz emitter comprises a bulk dendrimer such as a functionalized dendrimer for generating terahertz radiation with a high pump-terahertz conversion efficiency (greater than 1%) and high output power, and a substrate. The bulk dendrimer: is positioned on the substrate; has an enhanced electro-optic coefficient and a second order magnetic susceptibility resulting from poling induced dipole orientation; contains an enhanced number dipole moments generated from poling at a high electric field at an elevated temperature; is poled in-situ or ex-situ at a high electric field at an elevated temperature incorporating a dipole depleted charge density; is formed from Generation 0 to Generation 11 dendrimers and a film that is cured at a temperature 80-400 degrees C. The cured film has a glass transition temperature higher than 85 degrees C for continuous stable operation, and extended life. INDEPENDENT CLAIMS are included for:

(1) a terahertz system; and

(2) a fiber array connection mechanism.

DESCRIPTION DRAWING(S) - The diagram shows a schematic view a terahertz emitter.

Terahertz waveguide array (2610)

Pump laser (2620)

Beam expander (2630)

Coupling prism (2640)

Terahertz beam. (2650)

Drawing:

Derwent Class Code(s): P81 (Optics); V07 (Fibre-optics and Light Control)

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