

Title (en)
EMITTER AND/OR DETECTOR COMPONENT FOR SUBMILLIMETRE WAVE RADIATION AND METHOD OF PRODUCING SAID COMPONENT

Title (de)
EMITTER- UND/ODER DETEKTORBAUELEMENT FÜR SUBMILLIMETERWELLEN-STRAHLUNG UND VERFAHREN ZU SEINER HERSTELLUNG

Title (fr)
COMPOSANT EMETTEUR ET/OU DETECTEUR POUR RAYONNEMENT D'ONDES DE L'ORDRE DU SOUS-MILLIMETRE ET PROCEDE PERMETTANT DE LE PRODUIRE

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Priority

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Abstract (en)
[origin: DE19629583A1] The invention concerns a superconductive electronic component which displays specific properties of an emitter and/or detector for electromagnetic radiation in the submillimetre wave range. The component comprises a planar network of microbridges (webs) formed in a thin layer of a high-temperature superconductor. The latter is grown epitaxially on the substrate with the CuO₂ planes either perpendicular or inclined at an angle THETA (1 DEG < THETA < 89 DEG) to the substrate surface. In this way, each microbridge receives a sequence of stacks of superimposed (intrinsic) Josephson contacts. The invention also concerns superconductive connections (series and parallel) between individual microbridges, whereby switching circuit parameters, such as adaptation of the impedance to the radiation space and maximizing of the radiated output, can be optimized. The frequency and intensity, for example, of the radiation field can be influenced (e.g. modulated) by external means of an electronic control. In particular, this component can continuously cover the frequency range between the far infrared and the microwave range. The invention also concerns some applications of the proposed component, covering both the emission and detection of electromagnetic radiation.

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