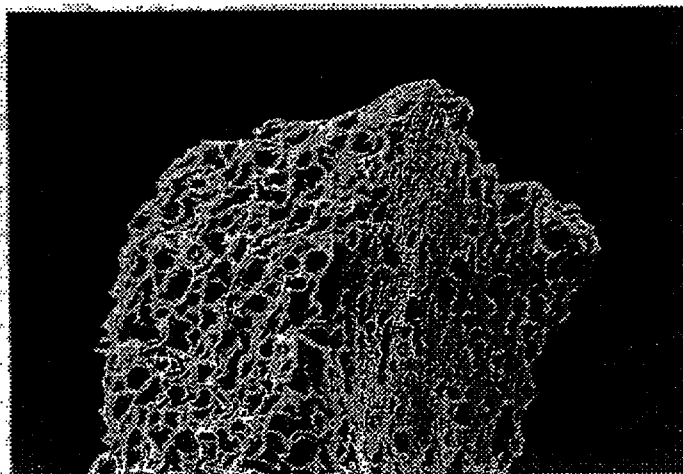




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(54) Title: PHOTOLUMINESCENT SEMICONDUCTOR MATERIALS**(57) Abstract**

Semiconductor materials having a porous texture are modified with a recognition element and produce a photoluminescent response on exposure to electromagnetic radiation. The recognition elements, which can be selected from biomolecular, organic and inorganic moieties, interact with a target analyte to produce a modulated photoluminescent response, as compared with that of semiconductor materials modified with a recognition element only.