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United States Patent [19] Martin

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[54] **LUMINESCENT COPPER ALUMINUM HALIDE MATERIALS**

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[58] Field of Search 252/584, 301.4 H; 423/463

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[57] **ABSTRACT**

A system for displaying luminescence comprises a crystalline structure comprising a compound having the formula:



wherein the compound has lattice parameters a=b ranging from 5.430(1) Å to 5.751(3) Å; c ranging from 10.069(1) Å to 10.570(4) Å; and X is selected from the group consisting of chlorine, bromine, and a mixture thereof. The crystalline structure may also include a compound of the formula:



wherein the compound has lattice parameters a=7.635(2) Å, b=12.842(2) Å, and c=6.127(1) Å. The system also includes an excitation source which transmits energy to the crystalline structure such that the crystalline structure displays luminescence. The crystalline structure is also useful in a gas sensor application since the luminescence of the crystalline structure is capable of being quenched in the presence of gaseous material.

24 Claims, 2 Drawing Sheets

