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Upconversion luminescence of Ca1-xHoxF2+xand Sr0.98-xEr0.02HoxF2.02+xpowders upon excitation by an infrared laser

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Abstract

© 2017 Astro Ltd. Fluorite-type Ca 1-x Ho x F 2+x and Sr 0.98-x Er 0.02 Ho x F 2.02+x powders were synthesized using the co-precipitation from water solution technique. The upconversion luminescence of Ca 1-x Ho x F 2+x and Sr 0.98-x Er 0.02 Ho x F 2.02+x powders in the visible spectral region upon excitation of 5 I 7 level Ho 3+ ions and 4 I 13/2 level Er 3+ ions were studied for the first time. The possibility of visualizing near IR laser radiation using Ca 1-x Ho x F 2+x and Sr 0.98-x Er 0.02 Ho x F 2.02+x powders is proposed. Optimal compositions of Ca 1-x Ho x F 2+x and Sr 0.98-x Er 0.02 Ho x F 2.02+x powders for application as visualizers are discussed.

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Keywords

Er ion 3+, fluoride powder, Ho ion 3+, near infrared laser, upconversion luminescence, visualizer

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