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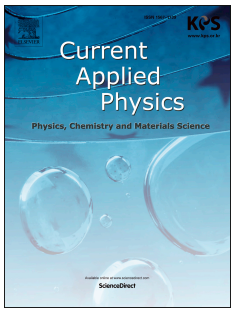

A study of energy transfer phenomenon leading to photon up-conversion in Ho^{3+}:Yb^{3+}:CaF_2 crystalline powders and its temperature sensing properties

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Graphical Abstract

Text

Up-conversion emission from Ho^{3+} in CaF_2 (bottom) occurs via energy transfer from Yb^{3+} at relatively high rates (top left). The intensity of the emission lines change with temperature in a way that favours optical temperature sensing (top right).

Image