

# Incorporation of CdSe quantum dots (QDs) in KH<sub>2</sub>PO<sub>4</sub> (KDP) crystalline host: Processes of elaboration and characterization

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## Description

The aim of this work is to survey experimentally the effect of doping CdSe quantum dots (QDs) on structural and optical properties of Di-hydrogen phosphate KH<sub>2</sub>PO<sub>4</sub> (KDP) single crystal, where we expose a simple and reproduced technic to obtain KDP:CdSe single crystal starting from aqueous solution phase. In order to characterize the samples comfortably, the obtained crystals were cleaved into pellets with suitable size each surface being parallel to the faces (100). The XRD results denote that the CdSe QDs inside KDP single crystal have only one preferred direction (110) and the estimated size as derived from Sheere's formula proved the nano-regime of guest material. On the other side, UV-vis absorption spectrums appear that a pure KDP crystal has transparence property in the visible range with a large window where  $E_g$  (KDP)  $\approx$  7.17 eV. However, KDP:CdSe sample exhibits two bands located at 425 ...