

(54) Title of the invention : STRUCTURAL, MORPHOLOGY AND OPTICAL PROPERTIES OF CDS: ND3+ NANOPARTICLES BY SIMPLE CHEMICAL PRECIPITATION METHOD

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| <p>(51) International classification :B01J 350000, C01F 111800, C02F 015200, D21H 177000, H04N 053780</p> <p>(86) International Application No :PCT//<br/>Filing Date :01/01/1900</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)Name of Applicant :<br/> <b>1)Mr. Jitendra Pal Singh</b><br/> Address of Applicant :Assistant Professor Department of Physics School of Sciences IFTM University, Moradabad, Uttar Pradesh, India, 244102 -----<br/> <b>2)Prof Y. K. Sharma</b><br/> <b>3)Dr Sudha Pal</b><br/> <b>4)Dr Richa Saxena</b><br/> <b>5)Dr Narender Singh</b><br/> <b>6)Ms. Swati Gupta</b><br/> <b>7)Dr Kapil Pandey</b><br/> <b>8)Dr Rajan Singh</b><br/> Name of Applicant : NA<br/> Address of Applicant : NA<br/> (72)Name of Inventor :<br/> <b>1)Mr. Jitendra Pal Singh</b><br/> Address of Applicant :Assistant Professor Department of Physics School of Sciences IFTM University, Moradabad, Uttar Pradesh, India, 244102 -----<br/> <b>2)Prof Y. K. Sharma</b><br/> Address of Applicant :Professor &amp; Head Department of Physics Sri Dev Suman Uttarakhand University Pt. L. M. S. Campus Rishikesh, Dehradun, Uttarakhand, India, 249201 -----<br/> <b>3)Dr Sudha Pal</b><br/> Address of Applicant :Assistant Professor Department of Physics M. B. Govt P G College, Haldwani, Nainital Rd, Uttarakhand, India, 263139 -----<br/> <b>4)Dr Richa Saxena</b><br/> Address of Applicant :Assistant Professor Department of Physics School of Sciences IFTM University, Moradabad, Uttar Pradesh, India, 244102 -----<br/> <b>5)Dr Narender Singh</b><br/> Address of Applicant :Assistant Professor Department of Physics School of Sciences IFTM University, Moradabad, Uttar Pradesh, India, 244102 -----<br/> <b>6)Ms. Swati Gupta</b><br/> Address of Applicant :Assistant Professor Department of Physics School of Sciences IFTM University, Moradabad, Uttar Pradesh, India, 244102 -----<br/> <b>7)Dr Kapil Pandey</b><br/> Address of Applicant :Assistant Professor Department of Physics School of Sciences IFTM University, Moradabad, Uttar Pradesh, India, 244102 -----<br/> <b>8)Dr Rajan Singh</b><br/> Address of Applicant :Assistant Professor Department of Mathematics School of Sciences IFTM University, Moradabad, Uttar Pradesh, India, 244102 -----</p> |
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(57) Abstract :  
STRUCTURAL, MORPHOLOGY AND OPTICAL PROPERTIES OF CDS: ND3+ NANOPARTICLES BY SIMPLE CHEMICAL PRECIPITATION METHOD ABSTRACT The present invention relates to the structural, morphology and optical properties of CdS: Nd3+ nanoparticles by simple chemical precipitation method. The invention provides the synthesis and characterization of cadmium sulphate with Nd3+ ions nanoparticles suitable for semiconductor application using simple chemical precipitation and manufacturable process. The average particle size of the CdS: Nd3+ nanoparticles is 100-50 nm. The optical physical parameters calculated as refractive index, dielectric constant, optical dielectric constant, reflection losses in different concentration were estimated by using the absorption spectrum at room temperature. The invention discloses the synthesis of the solution using cadmium nitrate tetrahydrate Cd (NO3)2.4H2O and a diethylene glycol, ethanol (C2H5OH) as source of cadmium and sodium sulfide (Na2S). Nd3+ ions are present in different concentrations of 0.1, 0.2 and 0.3 mole%.

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