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APPLICATION TYPE	ORDINARY APPLICATION
DATE OF FILING	27/02/2021
APPLICANT NAME	VALLURUPALLI NAGESWARA RAO VIGNANA JYOTHI INSTITUTE OF ENGINEERING AND TECHNOLOGY
TITLE OF INVENTION	Development of bismuth borate glasses co-doped with small concentrations of manganese oxide and zirconium oxide nanoparticles suitable for luminescent materials
FIELD OF INVENTION	CHEMICAL
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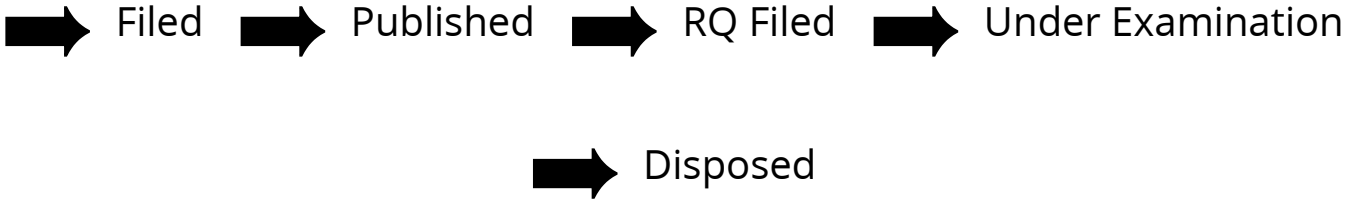

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(57) Abstract :
Five samples were prepared with the eutectic composition of 29Bi2O3-70B2O3-(1-x)ZrO2- xMnO2 (where, x = 0.00, 0.25, 0.5, 0.75 (in mol %). The Excitation spectra recorded for emission at 650 nm. The excitation wavelength is found to be 407 nm. The Photoluminescence spectra of the glasses were recorded by the excited wavelength 407 nm. The spectra exhibited emission bands at 440 nm, 540 nm, 650 nm and 758 nm. The emission bands at 540 nm (Green), 650 nm (Red) and 758 nm (Red) due to the transitions by 4T1†' 6A1 of Mn2+ ions in the crystal field of glasses. The emission band at 440 nm (Blue) due to transition of 3P1†'1S0of Bi3+ ions in the glasses. The three prime colors Red, Green and Blue can be emitted by these materials and wavelength of light emission in the visible band. Design of light emitting diodes Laser diodes of different colors is possible.

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