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SYNTHESIS AND CHARACTERIZATION OF AN EFFICIENT NEW LIQUID LASER DYE MATERIAL: CHALCONE (MSPPP)

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This paper includes the synthesis and characterization of 1-(4-methylsulfonyl phenyl)-3-(4-N, N dimethyl (amino phenyl)-2-propen-1-one (MSPPP) and its application as a new laser medium. The study investigated the absorption and fluorescence spectra of MSPPP under different solvents and concentrations. The amplified spontaneous emission performance of MSPPP under various concentrations, organic solvents and pump pulse energies of Nd: YAG laser (355 nm) was also studied. The amplified spontaneous emission spectra of MSPPP in solution were compared with a conventional laser dye of coumarin 503, under the same identical conditions. The gain and the fluorescence quantum yield of MSPPP were determined. The most important features are: MSPPP has an excellent photochemical stability and the amplified spontaneous emission from the MSPPP was tuned in the wavelength region between 515 and 548nm. This could be the first detailed paper on laser properties of MSPPP.

BIOGRAPHY

Mohana Faroug Saeed Attia is a Sudanese academic researcher. He obtained BSc in Applied Physics and Mathematics at Omdurman Ahlia University and MSc in Applied Physics at University of Dongola, Sudan. Currently he is about to submit his PhD from Al-Nee-lain University, Sudan. He has many articles and two books and has been lectured at many Universities and Research Centers in Sudan, KSA. He is lecturer of Alasala Colleges, Saudi Arabia, since 2017.

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