

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202211026890 A

(19) INDIA

(22) Date of filing of Application :10/05/2022

(43) Publication Date : 13/05/2022

(54) Title of the invention : A SYSTEM AND METHOD FOR DIELECTRIC PROPERTIES OPTIMIZATION OF POLY-VINYL PHENOL (PVP) FOR AN OFET FABRICATION

(51) International classification :H01L0021316000, H01L0021020000, G01N0021350000, B22F0001000000, G03F0007160000

(86) International Application No :NA
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA
Filing Date :NA

(62) Divisional to Application Number :NA
Filing Date :NA

(71)Name of Applicant :

1)Dr. Shalu C.

Address of Applicant :Assistant Professor, Department of Electronics and Communication Engineering, SET, IFTM University Moradabad, UP 244001 Moradabad -----

2)Dr. Anil Kumar

3)Mr. Ankur Chahal

4)Mr. Munendra Kumar

5)Mrs. Debika Chaudhuri

6)Ms. Pooja Sharma

Name of Applicant : NA

Address of Applicant : NA

(72)Name of Inventor :

1)Dr. Shalu C.

Address of Applicant :Assistant Professor, Department of Electronics and Communication Engineering, SET, IFTM University Moradabad, UP 244001 Moradabad -----

2)Dr. Anil Kumar

Address of Applicant :Professor, HOD, Department of Electrical Engineering, SET, IFTM University Moradabad, UP 244001 Moradabad -----

3)Mr. Ankur Chahal

Address of Applicant :Assistant Professor, Department of Electronics and Communication Engineering, SET, IFTM University Moradabad, UP 244001 Moradabad -----

4)Mr. Munendra Kumar

Address of Applicant :Assistant Professor, Department of Electrical Engineering, SET, IFTM University Moradabad, UP 244001 Moradabad -----

5)Mrs. Debika Chaudhuri

Address of Applicant :Assistant Professor, Department of Electronics and Communication Engineering, SET, IFTM University Moradabad, UP 244001 Moradabad -----

6)Ms. Pooja Sharma

Address of Applicant :Assistant Professor, Department of Electronics and Communication Engineering, SET, IFTM University Moradabad, UP 244001 Moradabad -----

(57) Abstract :

The present invention discloses a system and method for Dielectric properties optimization of Poly-vinyl Phenol (PVP) for an OF ET fabrication. In the present invention, the influence of solvent used for casting PVP dielectric thin films on leakage current, dielectric constant and Opto-electronic properties of DH6T thin films deposited over these dielectric films has been analysed, and further, explored the effect of three solvents namely Methanol, Propylene glycol monomethyl ether acetate (PGMEA) and Tetrahydrofuran (THF) to cast the thin films of pristine PVP and cross-linked PVP with MMF. These solvents are widely used for the fabrication of polymer dielectrics in small molecule based OFETs. Leakage current was measured in the spin casted films of pristine and cross linked PVP using these solvents. The variation in the amount of leakage current was observed using these solvents in pristine as well as in cross linked PVP. This variation in leakage current was attributed to the variation in the amount of -OH density present at the insulator. This variation was further confirmed with the help of Fourier Transform Infrared Spectroscopy (FTIR) and capacitance versus frequency measurements. Contact angle measurement were performed to measure the surface energy of the different polymer dielectric thin films casted in various solvents.

No. of Pages : 29 No. of Claims : 6