***A systematic investigation on physical properties of spray pyrolysis fabricated CdS thin films for opto-nonlinear applications: an effect of Na doping***

***M. Aslam Manthrammela,b, Mohd. Shkir\*a,b, S. Shafikc, Mohd. Anisd, S. AlFaify\*a,b***

*aResearch Center for Advanced Materials Science (RCAMS), King Khalid University, Abha 61413, Saudi Arabia*

*bAdvanced Functional Materials & Optoelectronics Laboratory (AFMOL), Department of Physics, Faculty of Science, King Khalid University, Abha 61413, Saudi Arabia*

*cThin Film Physics Laboratory, Department of Physics, Electronics and Photonics, Rajarshi Shahu Mahavidyalaya, Latur, 413512 Maharashtra, India*

*dDepartment of Physics and Electronics, Maulana Azad College of Arts, Science and Commerce, Aurangabad, 431001, Maharashtra, India*

**Corresponding author\***

***Dr. Mohd. Shkir***

***Associate Professor***

***King Khalid University, Abha, KSA***

***Phone: 966530683673***

***E-mail:*** [***shkirphysics@gmail.com***](mailto:shkirphysics@gmail.com)***,*** [***shkirphysics@gmail.com***](mailto:shkirphysics@gmail.com)***;*** [***salfaify@kku.edu.sa***](mailto:salfaify@kku.edu.sa)



**Fig. 1S** (a&b) χ(1) and χ(3) and (c) n2 vs. hυ(eV) plots for all NaxCd1-xS films