Annex 33

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**Fabrication and Characterisation of CuinS2/ZnSe/Metal Structures for Solar Cell Applications**R. P. Wijesundera1, N. P. Gunatunga1, W. Siripala1,K. D. Jayasuriya1, S. R. D. Kalingamudali1, K. T. L. De Silva2, J. K. D. S. Jayanetti2*1 Dept. of Physics, University of Kelaniya, Kelaniya, 2 Dept. ofPhysics, University of Colombo, Colombo*

Thin film solar cellstructure of Ti/CuInS2/ZnSe/Metal was fabricated using simple electrochemical and sulphurisation techniques. Copper Indium Disulphide (CuInS2) thin films were prepared by sulphurisation of Cu-In alloy on Ti substrates. Films were characterised using X-ray diffraction (XRD), scanning electronmicroscopy (SEM), spectral response and I-V measurements. XRD measurements showed the characteristic peaks of CuInS2 and SEM showed that the crystallites are of the size 1-3 mm. ZnSe thin films were deposited on Ti/CuInS2 using electrodeposition technique. Ti/CuInS2/ZnSe/Metal structures were characterised using C-V, I-V and spectral response measurements. Light and dark I-V measurements revealed the photovoltaic activity of the structure while the C-V measurements confirmed the formation of the heterojunction. Spectral response showed that the photocarriers are generated by the absorption of light in the CuInS2layer.