

## **Toward Efficient all inkjet printing solar cells: from Lab to Fab**

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### **Summary:**

We highlight in this talk “Drop-on-demand (DOD)” inkjet printing technology for the fabrication of thin film materials and related solar energy. Prior to the inkjet deposition of several materials such as  $\text{Cu(In,Ga)(S,Se)}_2$  (CIGSSe) and  $\text{Cu}_2\text{ZnSn(S, Se)}_4$  (CZTSSe), the formulation of the ink to find favourable viscosity, concentration of the precursors and the nature of the solvents are explored using Gibbs Phase Diagram. A commercially available piezoelectric print head with a chamber containing the materials in fluid form is used. High-speed camera integrated into the system enable to controls the deposition of picoliter-sized droplets on Moly. coated glass substrates and to optimise the drying speed and solidification of the deposited films. We discuss here different chemical approach for the synthesis and for the formulation of the precursors for binary and ternary compounds, our proof of concept to reduce raw material footprint using a solution process allows the fabrication of solar cells with efficient and promising CIGSSe and CZTSSe thin film solar cells.

### **References**

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