

High-mobility CdS Thin-Film Transistors by sol-gel method

Sung-Min Kwon¹, Jae-Hyun Kim¹, Han-Lim Kang², Myung-Gil Kim³, and Sung-Kyu Park¹

¹School of Electrical and Electronics Engineering, Chung-Ang University, Seoul, Korea

²School of Electrical Engineering, Korea University, Seoul, Korea

³Department of Chemistry, Chung-Ang University, Seoul, Korea

Tel.: 82-2-820-8547, E-mail: skpark@cau.ac.kr

Solution-processed thin-films have been researched for realization of low-cost, large area, and flexible electronic devices. Recently, various types of materials, organic semiconductors, carbon materials, and oxide semiconductors, have been suggested as cost effective processed semiconducting layer. With composition tuning, metal chalcogenide exhibited various optical and electrical properties for electronic and optoelectronic applications, such as advanced optical memory devices, thin-film solar cell, medical media detector and thin-film transistors. Thus, solution-based chalcogenide thin-film transistors (TFTs) propose to improve 1Transistor-1RAM(1T1R) structure. Moreover, chalcogenide materials have reported high carrier mobility, over $10 \text{ cm}^2/\text{Vs}$.^{1,2,3} To achieve general route for solution processed metal chalcogenide films, we investigated novel sol-gel type chalcogenide precursor systems. With our CdS precursor, we achieved high electron mobility TFT.

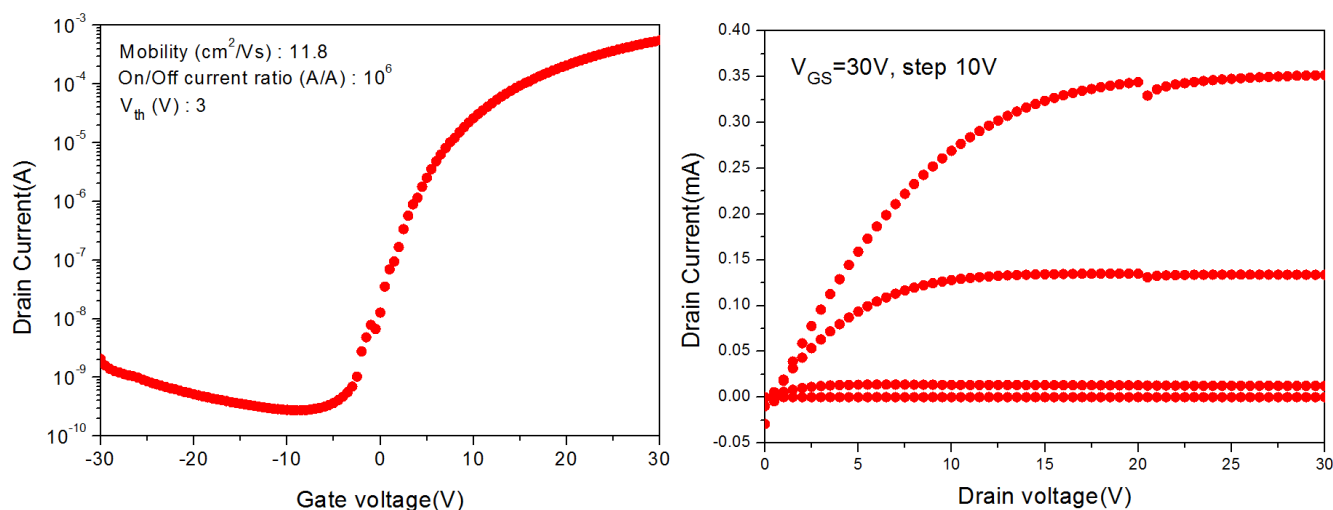


Fig. 1. TFT Transfer characteristic, Output characteristic

Fig. 1. shows transfer, output characteristics of CdS TFTs.

References

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