Progarmmable Metallization Cell(PMC) 소자에서 Ag와 칼코게나이드 박막의 두께에 따른 전기적 광학적 특성

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Electrical and Optical Properties on Thickness of Ag and Chalcogenide Thin Films at Programmable Metallization Cell Device

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Abstract : We have demonstrated new functionalities of Ag doped chalcogenide glasses based on their capabilities as solid electrolytes. Formation of such amorphous systems by the introduction of silver via photo-induced diffusion in thin chalcogenide films is considered. The influence of silver on the properties of the newly formed materials is regarded in terms of diffusion kinetics and Ag saturation is related to the composition of the hosting material. Silver saturated chalcogenide glasses have been used in the formation of solid electrolyte which is the active medium in programmable metallization cell (PMC) devices. In this paper, we investigated electrical and optical properties of Ag-doped chalcogenide thin film on changed thickness of Ag and chalcogenide thin films, which is concerned at Ag-doping effect of PMC cell. As a result, when thickness of Ag and chalcogenide thin film was 30nm and 50nm respectively, device have excellent characteristics.

Key Words : PMC(Programmable Metallization Cell), chalcogenide, solid electrolyte, Ag-doped