

Study on Overlapping Graphene and InZnO Thin Film for Active layer of Transistor.

EunA Won¹, Jihoon Jeon¹, Chansoo Yoon¹, Sangik Lee¹, Mijung Lee¹, Baeho Park¹

Department of physics, 120 neungdong-ro, Gwangjin-gu, seoul, korea¹
bluealicorn@gmail.com

Abstract

The fabrication of thin-film transistors based on amorphous silicon has been. Membrane process to create a simple and large-area amorphous silicon city, but does not apply to the display excellent electrical properties is difficult. Accordingly, the next generation of traffic register transparent transistors using oxide thin films and low-temperature grown spotlighted transparent oxide semiconductor prepared using a variety of transparent, flexible transistor applications is transparent, relatively high mobility and the possibility of low-temperature process, based on the characteristics transistor the application is possible. However, the mobility of the oxide thin film is limited.

In this study, we will improve the mobility through the overlapping both of Oxide Thin Film and Transferred CVD Graphene[1].

ZnO, In₂O₃, SnO₂ channel layer of a thin-film transistor manufacturing of Oxide-based and is mainly used for materials with better characteristics, and research continues. Transistor active layer InZnO thin films[2] by Spin-Coating Method and CVD Graphene as also active layer by transfer method using PMMA. Al as the electrode material, using a metal mask up manufacturing In this study, 20nm SiO₂ layer on the top of the Si substrate to the electric arc furnace was changed by the following was Fabricated device, the electrical characteristics were measured using 4point probe I_D-V_D using Kethely 4156B transistor performance as measured by I_D-V_G measurements.

References

- [1] Jinseong Heo, Nano Lett., 13, pp 5967–5971(2013).
- [2] Toshio Kamiya, Journal of Technology, 5(7), pp 273–288(2009).

Figures

