

Enhanced Memory Function of Graphene Memory Device Fabricated with Solubility-Controlled Solution

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A memory device was fabricated using graphene. When transferring graphene to the specific substrate, a ferroelectric polymer was used as the supporting film. When the ferroelectric-graphene hybrid film is stacked twice, two graphene films are used. One of them is used as a gate electrode, and the other graphene can be defined as a channel of a transistor. Since graphene is a material, the doping concentration of which can be changed, the stored data value can be read by the difference of the channel resistance of the transistor.

However, since the ferroelectric polymer film is crystalline, surface roughness is inevitably generated. The surface roughness is expected to form an imperfect interface between graphene and ferroelectric film. The smaller the surface roughness, the better the memory characteristics will be. In this paper, it was confirmed that the surface roughness can be reduced by using the solubility-controlled solution. As a result, we confirmed that graphene memory function is enhanced.

Biography:

Ms. J. H. Lee is an undergraduate student at Jeju National University in Korea, and her research interests are semiconductor memory devices. Mr. S. A. Rahman and Mr. S. A. Khan are graduate students in master course. Prof. Dr. W. Y. Kim is an assistant professor at Jeju National University in Korea since 2017. His research fields include applications of ferroelectric polymer and graphene process.