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Patterned MoS₂ films on elastomeric substrate for stretchable electronics

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Two-dimensional (2-D) materials such as graphene and transition metal dichalcogenides have been received great attention in the field of transparent, flexible and stretchable electronics. In particular, graphene has been widely used as transparent electrode for flexible and stretchable electronics due to its excellent electrical/mechanical properties and high optical transparency. However, graphene is not suitable for being used as semiconductor materials in transistor devices due to its zero band-gap. As alternative to graphene, molybdenum disulfide (MoS₂) is promising material for transistors due to its large band gap. Furthermore, MoS₂ films have excellent mechanical properties such as high elastic modulus (0.33 TPa) and breaking strength (23 GPa). Owing to their good mechanical properties, stretchable MoS₂ films have been studied. Here, we fabricated MoS₂ patterns on the substrate for the application of stretchable transistors.

Biography

Sang-Woo Kang completed his PhD in the Chemical Engineering from POSTECH, S. Korea in 2004 and worked as a researcher at University of Colorado at Boulder. He had worked at Samsung Electronics and after 2 years he moved to KRISS (Korea Research Institute of Science and Standards. He has published more than 50 papers in the field of the new materials and processes for semiconductor devices and has been serving as the chief of vacuum technique committee in Korea Vacuum Society in 2015.

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