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電子・数物系電子物理工学ナノデバイス研究 G
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- 会議

  2020 Virtual MRS Spring/Fall Meeting & Exhibit (11/27~12/4)

- 発表内容

「Macro-Scale Graphene-Based Tactile Pressure Sensor Array Sheet」

Macroscale flexible and stretchable pressure sensor enables to monitor pressure distribution on a variety of nonplanar objects such as infrastructure, vehicles, and humans if very thin flexible pressure sensor arrays can be realized. In fact, many types of flexible tactile pressure sensors have been studied. For the macroscale flexible sensor sheet, one important parameter is device cost. To realize economical sensor sheets, printing, transferring, and laser ablation methods have been widely proposed. As one of the potential economical process, this study proposes a simple and scalable fabrication process to form a very thin macroscale flexible tactile pressure sensor array.

Fabrication process is briefly explained. First, laser-induced graphene (LIG) was formed by exposing CO_2-based laser over polyimide film. The LIG layer was then transferred into a polydimethylsiloxane (PDMS) elastomer film. In parallel, silver electrodes were screen-printed on a polyethylene terephthalate (PET) film. After the formations, PDMS and PET films were laminated. Resistance change at an applied pressure was characterized. Due to the observation of contact area change between two conductive materials, at low pressure range less than 30 kPa, resistance change is large while the resistance change gradually decreases by increasing the applied pressure.

- 会議参加の感想

  世界的な COVID-19 のパンデミックにため、本会議においても COVID-19 に関する発表が多く見られました。世界中の科学者が COVID-19 の収束に向けて、研究活動をしていることに感銘を受けました。行っている研究が COVID-19 の収束に対して、どのように生かすことができるのかを考えた結果なのではないかと思います。私自身も、一人の研究者として、人の生活や社会をよりよくするために現在、行っている研究が実際にフォーカスしている分野だけでなく、他の分野にも生かすことができないのか考える必要があると思いました。