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Fabrication of Highly Aligned CNT and P(VDF/TrFE) Nanofiber Sheets

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Recently, nanofibers attract much interest not only in apparel industry, but also information technology, biomedical, or environmental fields. In the presentation, I will introduce fabrication and characteristics of highly aligned carbon nanotube (CNT) nanofiber sheets [1-4]. The multiwalled CNTs (MWCNTs) were deposited by chloride-assisted chemical vapor deposition. The length of obtained MWCNTs ranges up to the millimeter scale, and they can easily be spun into yarn by hand with the naked eye. The aligned CNT sheets were formed by stacking CNT webs drawn from spinnable CNT forest. As applications of the CNT sheets I will present strain sensors [5]. In addition to the CNT sheets, we fabricated copolymer of vinylidene fluoride and trifluoroethylene P(VDF/TrFE)(75/25 molar ratio) nanofiber sheets [6]. The highly aligned P(VDF/TrFE) nanofiber webs with high uniformity and smooth surface were obtained by electrospinning. The stretching and annealing process improved their crystallinity. I will also present their characteristics in my presentation.

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