

## 산소 도핑이 DNA 분자의 전류-전압 (I-V) 특성에 미치는 영향

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We investigated the possibility of carrier doping of various types of DNA molecules including poly(dG)-poly(dC) and poly(dA)-poly(dT) DNA molecules at the various temperatures (e.g., room temperature, 90, 100, and 130 °C) in O<sub>2</sub> or N<sub>2</sub> ambient using a rapid thermal processor (RTP). The observed experimental results suggest that the conductivity of DNA molecules can be easily controlled using oxygen doping and heat treatment. After the O<sub>2</sub> doping of DNA molecules at the temperature range of 90 ~ 130 °C, poly(dG)-poly(dC) DNA molecules behave as an *p*-type semiconductor material, whereas poly(dA)-poly(dT) DNA molecules act as a *n*-type semiconductor material. In addition, we found that the conductivity increases regardless of the DNA types due to the effect of heat treatment.