



**EFFECT OF CELLULOSE NANOFIBERS ON THE CONDUCTIVITIES OF THEIR CONDUCTIVE
POLYMER COMPOSITES**

S. Konagaya^{a,*}, H. Iriyama^b, T. Oshio^c

^aDepartment of Applied Chemistry, Graduate School of Engineering, Nagoya University, Furo-cho, Chikusa-ku, Nagoya 464-8603, Japan and ^bMitsubishi Rayon Co. Ltd., Japan, ^cSugino Machine Ltd., Japan

*Corresponding author: Konagaya@apchem.nagoya-u.ac.jp

Authors have been studying the addition effect of inorganic particles such as TiO₂ and Al₂O₃ on the conductivities of polyaniline sulfonic acid (PAS) / polyvinyl alcohol (PVA) composites. It was found that the conductivities of PAS/PVA composites were influenced by the species of inorganic particles. The addition of TiO₂ particles increased the conductivity of PAS/PVA composites, but an excess addition of TiO₂ nano-particles showed a tendency to decrease their conductivities, while the addition of Al₂O₃ particles had no effect on the improvement of the conductivities of the composites. The action mechanism of the inorganic particles was studied by the model experiment with the use of electrophoresis instrument. It showed that there is adsorption of PAS molecules on the surface of TiO₂ particles, which promote the formation of conductive networks of PAS molecules to increase the conductivity of PAS/PVA composite. The detail of inorganic particle effect is going to be spoken in this presentation.