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**Functionalization of Polymer Surface using Surface-wave Plasma for Immobilization of Sugar Chain** AKIHISA OGINO, SUGURU NOGUCHI, MASAAKI NAGATSU, Shizuoka University — To improve the surface property of polymers, sugar chain such as heparin is covalently immobilized on the polymer surface treated by surface-wave plasma. Plasma treatment is one of first and nontoxic method to modify the surface and to introduce functional group for immobilization of biomolecules. Among various functional groups for bioapplication, primary amine possesses high reactivity to bind oxygen containing functional groups. Heparin was immobilized to plasma treated polyurethane surfaces. The ratio of primary amine increased from 0.1% to 2.5% and 2.6% by ammonia plasma treatment without and with argon plasma pretreatment, respectively. The plasma treatment for 60 s sufficed to saturate the  $-\text{NH}_2$  introduction. The immobilized heparin roughly increased with  $-\text{NH}_2/\text{C}$  ratio. The primary amine seems to play an important role in heparin immobilization. We inferred that most heparins are covalently bound to the functional groups on the PU surfaces. The effect of immobilized heparin was also confirmed by blood clotting test of the surfaces. Heparin immobilized PU samples after plasma treatment showed much better anticoagulant property.

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