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1keV 아르곤 이온빔 조사를 이용한 고분자의 친수성과 접착력 증대
(Improving the wettability and adhesion of polymers by irradiation with Ar+ ion beam of 1keV enegry)

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Improvement in the wettability and adhesion of polymers (PC, PMMA, PET, Teflon, Silicon rubber) to metal and adhesive was achieved by irradiation with 1keV Ar+ ion beam in controlled oxygen atmosphere. Results from XPS, contact angle measurement and adhesion test show that the Ar+ ion irradiaton under oxygen gas environment introduces oxygen functional groups into the surface of polymers, which results in increase in suface energy, wettability and adhesion to metal and adhesives. The effects of ion beam dosage and oxygen gas environment on the wettability and adhesion properties of polymers are discussed in correlation with the change in the amount of hydrophilic groups and the degree of roughness at the surface. In addition, the chain mobility of the hydrophilic groups, when exposed to air and water, are investigated through the contact angle measurement.