

# **Polymeric film formation by physical vapor deposition technique**

Hiroaki Usui

Department of Organic and Polymer Materials Chemistry  
Tokyo University of Agriculture and Technology

Procedures for physical vapor deposition (PVD) of polymeric materials are reviewed. The methods include (1) direct evaporation of oligomers, (2) polycondensation or polyaddition of coevaporated monomers, (3) chain polymerization by electron, UV or thermally assisted vapor deposition, and (4) surface initiated deposition polymerization. PVD of polymers is effective especially for preparing thin films of insoluble polymers, ultra thin films and multilayered structure. It also has the advantage as a solventless closed process that does not emit volatile organic compounds. The application includes coating of polyimide, fluoropolymer and polypeptide thin films. The PVD is useful especially for preparing organic devices such as light emitting diodes.