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Localized surface plasmon effects of two dimensional lattice of metal nanoislands YUKARI ODA, RYOKO SHIMADA, Japan Women's University, JAPAN WOMEN'S UNIVERSITY TEAM — Localized surface plasmon (LSP) of metal nanoparticles results from non-propagating excitation of their conduction electrons coupled to the electromagnetic field. LSP localizes the electric field and enhances light emission from fluorescent materials. In this study, a two dimensional (2D) lattice of silver (Ag) nanoislands was fabricated by nanosphere lithography (NSL) method utilizing self-assembled, close-packed hexagonal structures of polystyrene spheres as the etching mask. This 2D lattice was subjected to the electric field for investigating a role of the periodicity of metal islands in the LSP effect. 9,10-di(2-naphthyl) anthracene (ADN), a well-known blue-emitting material in the field of electroluminescence, was used for the study of the enhancement of emission due to the LSP effect. Hybrid thin films of poly(methyl methacrylate) containing ADN were prepared with spin-casting onto the 2D lattice of Ag nanoislands. Transmission and photoluminescence measurements were conducted for these hybrid thin films at room temperature. Detailed results will be presented on site.

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