

Multilayer Fluorescent Images under UV Light

Kenta Yamamoto

The principle that the color of an object can be seen can be roughly divided into two types. One is when the object does not emit light, and the other is when the object itself emits light. Regarding the appearance of colors when self-emitting materials are used, the general framework has not sufficiently developed. For example, fluorescent ink is known as a material that emits light by itself. Although there are existing studies on how colors appear when this fluorescent ink is printed on a flat surface, the discussion is limited to a flat surface, and there is no study on three-dimensional(3D) function.

Therefore, we discussed the appearance of colors when multilayered fluorescent materials were made, and also proposed applications. First of all, we modeled the color appearance at multilayer. In this model, we attempted integration with models in planar printing so far, with reference to color contouring method, which has been proposed recently in the study of the 3D Printing area. Then, we made a state where color estimation is possible from the simulation at the wavelength level. Next we discussed the case of actual printing. While comparing the color estimation simulation with the actual printed matter, we investigated the constraint conditions that occur during printing. Finally, we showed some examples of applications utilizing the characteristics when multilayered fluorescent materials were used.

(Advisor: Yoichi Ochiai)