

S203

# Light Painting

## ひかりのおえかき

### ■ Purpose of Exhibition

When you direct lights on the sheet of this exhibit, you can continue to see a greenish light for a while even after the light is turned off. If you move the light around on the sheet, it seems like a picture or a character is being drawn. However, it is a strange light that disappears little by little. This exhibition introduces a phenomenon generally called "Phosphorescence" which will entertain you and draw your attention to its strange properties.



### ■ Additional Knowledge

[Phosphorescence Material]

You can see a greenish light in this exhibition, which looks shady somehow. Have you ever seen it somewhere else? The light gradually weakens, and disappears after a while. We call such a substance "Phosphorescence Material", and the substance which is made into powder and paint is called "Luminous Paint". Not only is this substance primarily utilized in the displays of clocks and guidance signs, but also it draws attention as a material for organic EL light-emitting displays.

[What Is the Shady Light?]

Light which we usually see is given off when the temperature of a substance is raised, such as with a light bulb and flame. Such shady lights have a characteristic: a glowing substance by directing the light. This luminous phenomenon is called "Luminescence". By receiving energy such as electromagnetic waves and friction from the outside, an atom forming substance is turned into a more highly activated state than usual. This is called an "Excited State". The excited atom tries to go back to a stable state in which the energy is low like it used to be, and gives off the energy received as a ray of light. It is a principle of luminescence.

Luminescence produced by giving light energy is called "Photoluminescence". Moreover, photoluminescence is divided into two types, "Fluorescence" and "Phosphorescence". "Fluorescence" is luminous only while receiving energy. On the other hand, "Phosphorescence" keeps glowing even after energy supply is cut. Phosphorescence material indicates a luminous substance, which produces phosphorescence for a long time. Substances like zinc sulfide and strontium aluminate are well-known phosphorescent materials.

Article by Shoji Nishimoto, curator