

# Theme: Functional Material

## Subject : New High Transparent Red and Green dye for LCD's Color Filter

### Introduction

The goal of this research project is to explore novel materials that can improve transmittance and contrast ratio of color filter for LCD.

In case of the novel materials, we expect red and green dyes for “deep color and high coloring” to go beyond the existing commercialized colorant (pigment). In case of the novel color filter using dye with the deep color and high coloring, we expect the high transmittance and contrast ratio due to improved properties compared with color filter using the existing commercialized pigment.

### Scope

Challenges that significantly advance the state-of-the-art novel dyes with high transmittance and contrast ratio in LCD's color filter include:

- Methods to overcome the current pigment performance.
- Verification of new materials on the basis of LCD's color filter.
- Methods to provide a novel structure of dye to improve the performance of the LCD's color filter.

### Research questions

We are interested in the following research questions. These questions are not exhaustive but different research questions are open to discuss with research partners.

- What would be strong candidate chromophore for a high transmittance?
- What would be most promising structure of dye to overcome chemically decomposition in UV and heat curing process?
- Is it possible to maximize high transmittance and contrast ratio using novel dyes?

### Expected Deliverables

The following is open to discussion:

- Suggestion of structure of dye
- Detailed progress reports every 3 months summarizing accomplishments.
- Prototype samples
- Patents with Samsung SDI (if agreed)