

xDReflect, a European Joint Research Project devoted to the metrology of the appearance of surfaces

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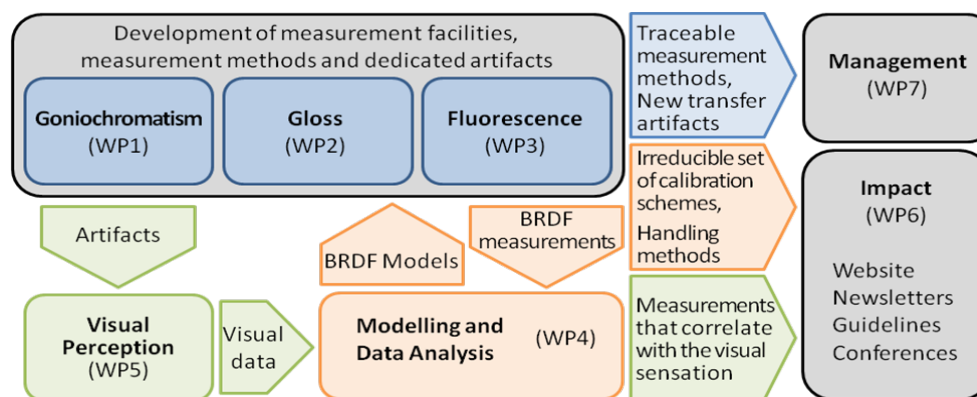
xDreflect is a Joint Research Project (JRP) which has been developed in the framework of the European Metrology Research Programme (EMRP), a metrology-focused programme funded by the European Commission. EMRP supports research collaboration between the National Metrology Institutes (NMIs) of Europe.

The general objective of xD-Reflect is to meet the demands from industry to describe the overall macroscopic appearance of modern surfaces by developing and improving measurement facilities, measurement protocols, standard artefacts and guidelines for the physical measurement of the visual attributes, which have been restricted in this project to color, gloss, sparkle, graininess and fluorescence. One wish is that the physical measurements proposed correlate as much as possible with the visual sensation of the corresponding attributes.

Practically the JRP is organized with 3 “vertical” work packages and 2 “horizontal” ones. The vertical WPs develop essential measurement facilities, basic measurement methods and dedicated artefacts that are lacking for the industries dealing with appearance matters. These are multi-geometry measurements for colour (WP1), measurement of gloss (WP2) and goniometrical fluorescence (WP3). The two additional transversal WP reinforce the structure. “Modelling and Data Analysis” (WP4) has the objective to propose BRDF models and to provide irreducible sets of calibration schemes and handling methods and “Visual Perception” (WP5) will produce perception scales for the different visual attributes using the artefacts developed in the 3 first WP.

A “Creating Impact” work package (WP6) provides knowledge transfer by the establishment of a project website (<http://www.xdreflect.eu>), organization of training events and conferences, and by listing and promoting the scientific publications.

The following figure depicts the structure of the project:



Participating partners within the project are 8 NMIs: LNE-CNAM (France), PTB (Germany), MIKES (Finland), INRIM (Italy), CMI (Czech Republic), SP (Sweden), CSIC (Spain), MSL (New Zealand) and 3 organisations which beneficiate of a specific grant to work on the project, which are the universities KU Leuven (Belgium) and Alicante (Spain) and the company Innventia (Sweden). The project has started last September and will last 3 years.

This project represents a significant effort given by the European Union in the field of the metrology of appearance. In this presentation, the objective of the different work packages will be described and the first results will be presented.

Short bio

Dr. Gaël Obein is an assistant professor at Conservatoire National des Arts et Métiers (CNAM) in Paris, France. He is head of the photometry service and manager of the team “metrology of appearance” at LNE-CNAM, the French NMI. He has the responsibility of the realization of the French candela. He has a twelve years experience in the field of psychophysical measurements and BRDF measurements. He is the national delegate from France for CIE Division 2. Since September 2012, he has been the coordinator of the JRP xDreflect.