

Colorimetry in Photovoltaics : A route to assimilate how to report the color of a solar panel

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The concept of color is one of the most fundamental building blocks on which we humans interpret the world around us, as it is a pervasive part of our visual experience. For that, colorimetry, or the science of color, which is closely associated with human vision, has attracted a great deal of interest that spans many centuries. As solar panels marked their golden jubilee in commercial applications, aesthetics became more crucial, and the PV market demand becomes more than simply efficiencies.^[1] For instance, transparency, color, and color-neutrality were introduced in the field and made it appealing for new developments.^[2,3] In supplement to the traditional power plant and rooftop integration, such new perceptions of PV panels create a new value for building integration, agri-photovoltaic, urban street equipment, Internet of Things (IoT) energy supply, or smart panels. Understanding how we perceive colors necessitates understanding the human eye's sensitivity, after which we will be able to quantify the color characteristics.^[4] In order to accurately report a color of an object, few terms and their definition are to be highlighted. This communication succinctly covers the salient points of how to report the colors for photovoltaics and examples related to our development in the field of dye-sensitized solar cells will be given.

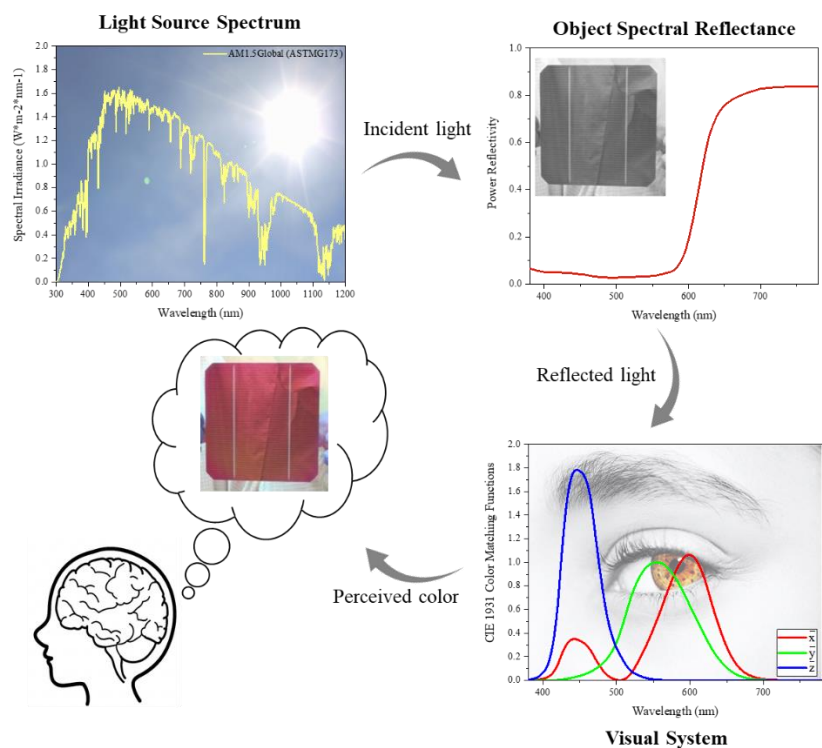


Figure 1. Schematic representation of the human eye perception of the color of a red photovoltaic module

References

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