COLOR SYSTEMS AND SPACES

Golovan A.,gr. IN-61

Color is the visual perceptual property of humans. Color derives from the spectrum of light. The science of color is called chromatics. Chromatics include the perception of color by the human eye, the origin of color in materials, color theory in art and the physics of light.

Light is electromagnetic radiation in the visible range. Electromagnetic radiation is characterized by its wavelength and its intensity. The familiar colors of the rainbow in the spectrum include all those colors that can be produced by visible light of a single wavelength only.

A color model is an abstract mathematical model describing the way colors can be represented as numbers.

A mathematical way to describe color information using color model is called color space.

The gamut is the set of possible colors within a color system. Gamut in combination with the color model, defines a new color space.

CIE XYZ color space is one of the first mathematically defined color spaces. CIE XYZ color space can be represented as a prism.

There are many various types of color systems in the world. The RGB color model is an additive color model in which red, green, and blue light are added together in various ways to reproduce a broad array of colors. With red, green and blue the largest portion of the human color space can be captured.

RGB model is poorly aligned with the color-making attributes recognized by human vision.

HSV color model is a transformation of an RGB color space and often used by artists.

CMYK is a subtractive color model, used in color printing, also used to describe the printing process itself. To save money on ink, and to produce deeper black tones, unsaturated and dark colors are produced by substituting black ink for the combination of cyan, magenta and yellow. In the CMYK model, white is the natural color of the paper background, while black results from a full combination of colored inks.

Lab color model was designed to approximate human vision.

Plokhuta T. M., *EL adviser*