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Luminance Gradient Illusions

A luminance gradient is defined as a smooth change in intensity occurring on a surface. Several visual phenomena are related to the presence of such gradients, and generally it is the case that a luminance ramp affects some surface quality feature, such as perceived shape. The present research will show that luminance ramps can strongly influence also neighboring areas, generating compelling impressions of self-luminosity or spatial illumination. In particular, two illusions are considered and described in detail, the glare effect and the phantom illumination illusion, that have similar physical properties yet generate different perceptual outcomes. Empirical data for each illusion is discussed in relation to theories on lightness and brightness, and current research projects are illustrated.

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