

Optical Formulations with Textile Structures for Metal Lighting Fixtures

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Abstract:

Light is considered one of the most important elements of design due to its aesthetic and functional values. The field of designing lighting units holds a significant position in the design of metal products. Textiles, being one of the oldest industries in history, have not been confined to their functional role in fabric production alone. Instead, they serve as a gateway to fostering innovation in various other applied fields. Research has increasingly focused on utilizing textile structures as building blocks in designing lighting units, resulting in innovative light formulations. This study highlights the importance of integrating the fields of textiles and metal product design. The research problem lies in the fact that designers sometimes overlook the aesthetic potential that textile structures can offer in lighting units. Additionally, there is a significant gap between the materials used in textile applications and those used in metal lighting units. The research aims to enhance the aesthetic and functional output of lighting units by creating innovative designs using textile structures with metallic materials. The hypothesis of the study is that textile structures influence light distribution and permeability, enabling the design of lighting units that achieve a balance between functional and aesthetic lighting through shadows, reflections, and permeability. The research follows an experimental and applied methodology, involving several practical experiments to test the hypothesis and enrich the aesthetic and functional values of lighting units.

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