ABSTRACT:

Membranes as Insightful Solutions for Microenviroment Remediation and Mitigation Even in Cultural Heritage

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Membranes are dynamic interfaces working as proactive systems for environmental mitigation and microenvironment adjustment. They can contrast negative effects due to climate changes, infiltration, heat islands, excess of moisture, carbon dioxide, and other contaminants, which cause deterioration of works of art [1]. Nanocomposite membranes [2] as well as responsive membranes [3] are attractive within the context of cultural heritage conservation due to the fact that they can remove dusts, critical gases (CO2, CH4, NOx, etc.), VOCs and other airborne agents by assisted and actuated mechanisms. Also, they can regulate fluctuations of humidity and temperature and contrast infiltration and salt crystallization. Membranes can be used for outdoor reversible protection without affecting aesthetic, originality and integrity of stored artifacts; but also, they can be noninvasive indoor solutions for restoring and keeping equilibrated ambiences according to required microclimatic conditions.

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