

Stable and reproducible porous coatings for smart window applications

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The reported work is concerning porous silica dielectric coatings which are exhibiting improved light transmittance properties. These anti-reflective (AR) coatings are increasingly popular in various research areas and applications [1]. One of their most important basic requirements is that they maintain their optical stability during the time of their utilization. Attaining sustainable long-lasting porous thin films with AR properties is a major challenge, especially in optically transparent windows and in related applications, for instance regarding preparation of self-cleaning surfaces or solar energy conversion. In order to improve the temporal stability of the films, a custom network strengthening chemical treatment is suggested.

Measurement results of spectroscopic ellipsometry, ellipsometric porosimetry [2], transmission electron microscopy and optical spectroscopic transmission are presented and discussed.

Keywords: glass; ellipsometric porosimetry; porous coating, smart windows

References

[1] L. Kócs et al., *Periodica Polytechnica Chemical Engineering*, 62 (1) 21-31 (2018), and references therein.

[2] A. Bourgeois et al., *Adsorption*, 14 (4-5) 457-465 (2008)