

Poster Presentations

Electrochromic Properties of WO₃ doped with Ti and Zn atoms

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Abstract

WO₃ electrochromic thin films doped with Ti and/or co doped with Zn atoms have been prepared by sol-gel technique onto FTO/Glass substrates. WO₃ doped with 0.05% of Ti (W_{0.95}Ti_{0.05}O₃) was co doped with Zn molar concentration varies according to W_{0.95}Ti_{0.05-x}Zn_x, where x ranges from 0 - 5 %. For these films, different electrochromic parameters have been studied. Cyclic voltammetry (CA), Chronoamperometry (CA), and transparency during CA was used to study the electrochromic parameters. Best electrochromic properties was observed for co-doped film with nominal composition of W_{0.95}Ti_{0.03}Zn_{0.02}. Compared to all studied films, this film (W_{0.95}Ti_{0.03}Zn_{0.02}) showed the highest contrast ration ($T_b/T_c \approx 1.85$). Also, this film has highest coloration efficiency (60 cm²/C), which is 2.2 times higher than WO₃ doped with Ti alone (W_{0.95}Ti_{0.05}). Moreover, co-doped film has a good switching time and excellent reversibility ($Q_a/Q_c \approx 0.95$), which are almost same as single doped film.