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**Nanostructured Al-doped zinc oxide films
by rapid photothermal processing
for solar cells applications**

Sisianu, Teodor, Sisianu, Sergiu, Sontea, Victor, Pocaznoi, Ion, Lupan, Oleg,
Chow, Lee, Khallaf, Hani, Monaico, Eduard, & Railean, Serghei

Abstract:

Nanostructured ZnO thin films have been deposited on Si substrates using a novel chemical solution deposition method. The structure, morphology, and electrical properties of the films were studied for different concentrations of Al-dopant and were analyzed as a function of the rapid photothermal processing temperatures. It was found that process parameters such as Zn and Al concentration in solution, anion solution temperature, rinsing duration have an important role in determining the nanostructure of the films. The results of influence of growth process, doping, and rapid photothermal processing on their properties and solar cells applications are presented.