

## عنوان مقاله:

Material optimization for front contact of CdTe based thin film solar cells using TOPSIS method

## محل انتشار:

دومین کنگره بین المللی علوم و مهندسی (سال: 1397)

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## نویسنده:

,Nasim Nobari - Department of Physics, Mahabad Branch, Islamic Azad University, Mahabad ۵۹۱۳۵, Iran

## خلاصه مقاله:

A method to determine the rank of different possible transparent conductive materials, as the front contact of a CdTe based thin film solar cell, is presented. For this purpose, the real problem of ranking the proposed materials is conducted to a Multi- Attribute Decision Making (MADM) method. The optical and electrical properties, such as thickness, carrier concentration, mobility conductivity, transparency and plasma frequency of films as primary conditions and some linguistic factors including cost, stability, toxicity, etchability, as secondary requirements are considered. The properties depend both on chemical composition of materials and the method of their preparation. Merit of each material is calculated as a function of these criteria. This work is a process of ranking the proposed transparent conductive oxides and determining the best feasible alternatives for ITO. It is observed that aluminum and gallium doped zinc oxides (AZO, GZO) and then cadmium stannate with buffer layer CTO/ZTO are the best alternative materials for ITO that is in accordance with experiments.

## کلمات کلیدی:

.TOPSIS, Thin film, TCO, Solar cell, Optimize

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/878054>

