

## Accepted Manuscript

An extended thermodynamic model for size-dependent thermoelectric properties at nanometric scales: application to nanofilms, nanocomposites and thin nanocomposite films

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PII: S0307-904X(15)00578-8  
DOI: [10.1016/j.apm.2015.09.044](https://doi.org/10.1016/j.apm.2015.09.044)  
Reference: APM 10743



To appear in: *Applied Mathematical Modelling*

Received date: 18 December 2014  
Revised date: 28 May 2015  
Accepted date: 23 September 2015

Please cite this article as: H. Machrafi , An extended thermodynamic model for size-dependent thermoelectric properties at nanometric scales: application to nanofilms, nanocomposites and thin nanocomposite films, *Applied Mathematical Modelling* (2015), doi: [10.1016/j.apm.2015.09.044](https://doi.org/10.1016/j.apm.2015.09.044)

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**Highlights**

- Several thermoelectric properties are studied at nanoscales.
- The study is based on extended irreversible thermodynamics.
- Easy-to-use formulae are proposed that still capture complex nanoscale phenomena.
- The figure of merit is shown to increase in nanofilms and nanocomposites.
- Extending towards nanofilms of nanocomposites gives even higher figures of merit.

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