

# Photovoltaic Cells; Investigators from University of Electronic Science and Technology Zero in on Photovoltaic Cells (Multicores and GPU utilization in parallel swarm algorithm for parameter estimation of photovoltaic cell model)

Publication info: Nanotechnology Weekly ; Atlanta [Atlanta]15 Feb 2016: 83.

[ProQuest document link](#)

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## ABSTRACT

According to the news reporters, the research concluded: "Simulation results demonstrate that the proposed method significantly increases the computational speed in comparison to the sequential algorithm, which means that given a time requirement, the accuracy of a solution from the PSA can be improved compared to that from the sequential one by using a larger swarm size."

## FULL TEXT

2016 FEB 15 (VerticalNews) -- By a News Reporter-Staff News Editor at Nanotechnology Weekly -- Investigators discuss new findings in Photovoltaic Cells. According to news reporting originating in Chengdu, People's Republic of China, by VerticalNews journalists, research stated, "Bio-inspired metaheuristic algorithms have been widely applied in estimating the extrinsic parameters of a photovoltaic (PV) model. These methods are capable of handling the nonlinearity of objective functions whose derivatives are often not defined as well."

The news reporters obtained a quote from the research from the University of Electronic Science and Technology, "However, these algorithms normally utilize multiple agents in the search process, and thus the solution process is extremely time-consuming. In this regard, it takes much time to search the possible solutions in the whole search domain by sequential computing devices. To overcome the limitation of sequential computing devices, parallel swarm algorithm (PSA) is proposed in this work with the aim of extracting and estimating the parameters of the PV cell model by utilizing the power of multicore central processing unit (CPU) and graphical processing unit (GPU). We implement this PSA in the OpenCL platform with the execution on Nvidia multi-core GPUs."

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For more information on this research see: Multicores and GPU utilization in parallel swarm algorithm for parameter estimation of photovoltaic cell model. Applied Soft Computing, 2016;40():58-63. Applied Soft Computing can be contacted at: Elsevier Science Bv, PO Box 211, 1000 Ae Amsterdam, Netherlands. (Elsevier - [www.elsevier.com](http://www.elsevier.com); Applied Soft Computing - [www.journals.elsevier.com/applied-soft-computing/](http://www.journals.elsevier.com/applied-soft-computing/))

Our news correspondents report that additional information may be obtained by contacting T.O. Ting, Univ Elect Sci & Technol China, Sch Comp Sci & Engn, 2006 Xiyuan Ave, Chengdu 611731, Sichuan, People's Republic of China. Additional authors for this research include J.M. Ma, K.S. Kim and K.Z. Huang.

Keywords for this news article include: Asia, Chengdu, Algorithms, Electronics, Nanotechnology, Photovoltaic Cells,

## DETAILS

<b>Subject:</b>	Photovoltaic cells; Algorithms; Parameter estimation
<b>Location:</b>	China
<b>Identifier / keyword:</b>	Chengdu People's Republic of China Asia Algorithms Electronics Emerging Technologies Nanotechnology Photovoltaic Cells
<b>Publication title:</b>	Nanotechnology Weekly; Atlanta
<b>First page:</b>	83
<b>Publication year:</b>	2016
<b>Publication date:</b>	Feb 15, 2016
<b>Publisher:</b>	NewsRx
<b>Place of publication:</b>	Atlanta
<b>Country of publication:</b>	United States, Atlanta
<b>Publication subject:</b>	Chemistry--Physical Chemistry
<b>ISSN:</b>	1944-2483
<b>Source type:</b>	Wire Feeds
<b>Language of publication:</b>	English
<b>Document type:</b>	Expanded Reporting
<b>ProQuest document ID:</b>	1764391455
<b>Document URL:</b>	<a href="https://search.proquest.com/docview/1764391455?accountid=49069">https://search.proquest.com/docview/1764391455?accountid=49069</a>
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<b>Last updated:</b>	2016-02-11
<b>Database:</b>	Health &Medical Collection

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