The Tonatiuh Software Development Project: An Open Source Approach to the Simulation of Solar Concentrating Systems

Manuel J. Blanco, Juana M. Amieva and Azael Mancillas

Paper No. IMECE2005-81859, pp. 157-164; 8 pages
doi:10.1115/IMECE2005-81859

From: ASME 2005 International Mechanical Engineering Congress and Exposition
Computers and Information in Engineering
Orlando, Florida, USA, November 5 â“ 11, 2005
Conference Sponsors: Computers and Information in Engineering Division
Copyright © 2005 by ASME

ABSTRACT

The Tonatiuh project is underway at the University of Texas at Brownsville under the DOE-NREL Minority University Research Associate (MURA) Program Subcontract. It intends to improve the cost-effectiveness of solar energy technologies by advancing the state-of-the-art of the simulation tools available for the design and analysis of solar concentrating systems. The project includes the design, development, implementation, verification and validation of Tonatiuh: an open-source advanced object-oriented program, that using distributed computing, Monte-Carlo Ray tracing, and the best 3-D user interface technologies available today, will provide a sophisticated and efficient software environment for the design and analysis of solar concentrating systems. This paper presents an overview of the Tonatiuh Software Development Project, emphasizing the software design aspects of the project, and the scientific relevance of the program.

Copyright © 2005 by ASME

Topics: Simulation, Solar energy, Software development