



“Gheorghe Asachi” Technical University of Iasi, Romania



PSEUDO-EQUATORIAL TRACKING OPTIMIZATION FOR SMALL PHOTOVOLTAIC PLATFORMS FROM TORONTO/CANADA

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Abstract

A first aim of this paper is to present the comparative tracking efficiency analysis of bi-axial and mono-axial pseudo-equatorial tracking systems for the small photovoltaic (PV) platforms, implemented in Toronto, Canada (43°42'59" lat. N). For comparative reasons some results were also simulated considering another location situated approximately at the same latitudinal level: Braşov, Romania (45° 40' lat. N).

In order to fulfill this aim, firstly different aspects are presented regarding the solar radiation, the tracking angles and the incidence angles between the sunray and the PV platform.

Based on the results of this analysis, the main aim of the paper is fulfilled: the identification of the *optimum pseudo-equatorial tracking solution* for the location Toronto, Canada, having two different components: on one side the *mechanical tracking system* and on the other side the *tracking program*. This solution is considered to be the one which delivers the *highest energetic response* based on the tracking program with the *lowest power consumption*.

Key words: angular stroke, bi-axial tracking, efficiency, mono-axial tracking, PV system

Received: April, 2011; *Revised final:* August, 2011; *Accepted:* August, 2011

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