

News

18th Nov. 2011**MVS receives several orders for Cluster Tool systems for thin film silicon solar cell development from Mexico and Europe.**

Golden, Colorado, USA: MVSsystems, Inc. is pleased to announce that it has received several Cluster Tool system orders from (a) **Instituto Nacional de Astrofisica, Optica y Electronica, Puebla, Mexico**, (b) **Centro de Investigacion en Energia, Ciudad Universitaria, Mexico** and (c) **a major European energy company**. The systems (consisting of many PECVD and sputtering process chambers) will be used for the development of solar cells using amorphous and nano-crystalline Silicon materials. It also received orders for proprietary showerhead RF electrodes from **CNRS, Ecole Polytechnique (France)** and **Solar Energy Research Institute, Singapore**. MVS recently,



shipped a Cluster Tool system to **Hebei University, Baoding, China** for the development of solar cells using amorphous and nano-crystalline Silicon materials;

installed at **The University of Toronto, Canada**, a cluster tool (consisting of many PECVD/sputtering chambers and an in- vacuo flip station) for the development of high efficiency heterojunctions;

installed at **The University of Toledo, Ohio**, an additional chamber to **expand the capability of their Cluster Tool** (for rigid and flexible substrates using reel to reel cassette approach) which MVS had installed in 2009.

R and D activities

MVS (with its subcontractor **The University of Hawaii- Hawaii Natural Energy Institute** and its partner **National Renewable Energy Laboratory**, Golden, Colorado) under a multi-million contract (\$3.79 million) from **US Department of Energy** is continuing the development of photo-electrochemical cells for solar to hydrogen conversion. MVS is also developing a novel high efficiency thin film solar cell sponsored by **National Science Foundation**.

Products and Foundry Service provided by MVSsystems Inc.

Cluster Tool systems for rigid substrates (size: 15 cm x15 cms and 30cmx40cm): different process modules such as **PECVD (fixed at 13.56MHz, pulsed, VHF), sputtering, Hot Wire CVD, rapid anneal etc. can be integrated** around a central evacuated chamber which houses a robotic arm which inserts and extracts the substrates from the process chambers.

Cluster Tool systems for flexible substrates (web width: 15cm or 30cm)-patent #6,258,408 B1: this uses a cassette which houses a flexible material. The cassette is engaged for movement of the flexible material from one reel to another during the deposition. At the end of deposition, the cassette is locked into position and disengaged from the chamber for transport to another process chamber. Hence cross contamination is eliminated for fabrication of devices (e.g. solar cells or thin film transistors) on flexible substrates. The system also allows the use of rigid substrates.

In line PECVD systems for low volume manufacture of SiNx coatings on **multicrystalline Si solar cells and amorphous Si for high efficiency heterojunction devices** (throughput ~ 200-500 wafers/hr.).

Foundry service: thin film Si (p,i,n), SiNx, SiOx, ZnO, ITO depositions from the in-house Cluster Tool which can handle up to 30cm x 40cm sized substrates or multiple smaller substrates in each run.