Communiqués de presse

En direct des Labs : IBM établit un record du monde en créant des cellules solaires à haut rendement entièrement fabriquées à partir de matières naturelles

Breakthrough holds potential to deliver more energy at a fraction of the cost

ARMONK, NY - 11 févr. 2010: IBM today announced it has built a solar cell—composed entirely of earth-abundant elements—that set a new world record for efficiency and holds potential for enabling solar cell technology to produce more energy at a lower cost. Comprising copper (Cu), tin (Sn), zinc (Zn), sulfur (S), and selenium (Se), the cell's power conversion demonstrates an efficiency of 9.6 percent—40 percent higher than the value previously attained for this set of materials. By advancing solar cell technology, IBM is leveraging its world-class expertise in microprocessor design, materials and manufacturing.

"*In a given hour, more energy from sunlight strikes the earth than the entire planet consumes in a year, but solar cells currently contribute less than 0.1 percent of electricity supply—primarily as a result of cost*," said **Dr. David Mitzi**, who leads the team at IBM Research that developed the solar cell. "*The quest to develop a solar technology that can compare on a cost per watt basis with the conventional electricity generation, and also offer the ability to deploy at the terawatt level, has become a major challenge that our research is moving us closer to overcoming*."

The IBM researchers describe their achievement of the thin-film photovoltaic technology in a paper published in *Advanced Materials* this week, highlighting the solar cell's potential to accomplish the goal of producing low-cost energy that can be used widely and commercially.

The solar cell development also sets itself apart from its predecessors as it was created using a combination of solution and nanoparticle-based approaches, rather than popular but expensive vacuum-based technique. The production change is expected to enable much lower fabrication cost, as it is consistent with high-throughput deposition techniques printing, dip and spray coating and slit casting.

While previous commercial efforts to employ thin film solar cell modules have produced 9 to 11 percent efficiency levels, they have primarily focused on only two costly compounds—copper indium gallium selenide or cadmium telluride— and as such, have been either too costly to produce or contain elements that could ultimately limit production capacity. Attempts to create affordable, earth abundant solar cells from related compounds have not exceeded 6.7 percent, compared to IBM's new 9.6 efficiency rating.

Over the past several years, IBM researchers have pioneered several breakthroughs related to creating inexpensive, efficient solar cells. IBM does not plan to manufacture solar technologies, but instead will license intellectual property resulting from its solar cell related research.