Industrial applications.

academic, scientific, and technological prominence, as well as current and future

The Center is engaged in basic research projects related to new energy materials, with

various materials used in the new energy industry.

short term and long term progress in the design, characterization, and production of

mission of establishing a solid scientific and technological base to assist and sustain

The CNBM New Energy Materials Research Center, CNBM, is charged with a
characterization methods for devices.

A particular focus will be on the application of electronic and optical spectroscopies including DLTS, PL, TRPL, and novel techniques for semiconductor oxides and buffer layers. As transparent conducting oxides and buffer layers (e.g., \( \text{Ga}_2\text{Se}_2 \)) and other thin-film absorbers plus associated layers such as functional materials and devices.

Materials for photovoltaic applications will include CdTe, Cu(In,

\[ \text{Our vision is to build up a Center for R&D in Solar Cells,} \]

**Vision and Goals**
are as

 Assist CNBM to enter photovoltaics and other new manufacturing areas

 Publish high quality technical papers and generate valuable IP.

 Conduct US-based and international collaborations.

 Acquisition of laboratory skills

 Contribute signification to student education and training, and their full range of PV module fabrication and testing.

 Construct a pilot line to validate scale up and provide a test bed for

 Goals

 Department of Physics, NIT
 CNBM New Energy Materials Research Center
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>116.7 W 7200 cm² Monolithic module (2/13)</td>
<td>8.7</td>
<td>2.52 A</td>
<td>74.8</td>
<td>Module</td>
<td>16.1</td>
<td>First Solar</td>
</tr>
<tr>
<td>Announced at IEE PVSC</td>
<td>903</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2013</td>
</tr>
<tr>
<td>100% IGE Announced at IEE PVSC; near</td>
<td>78.2</td>
<td>28.0</td>
<td>872</td>
<td>19.0</td>
<td>First Solar</td>
<td>2013</td>
</tr>
<tr>
<td>Improved buffer layer</td>
<td>76.7</td>
<td>28.6</td>
<td>852</td>
<td>18.7</td>
<td>First Solar</td>
<td>2012</td>
</tr>
<tr>
<td></td>
<td>79.0</td>
<td>27.0</td>
<td>857</td>
<td>18.3</td>
<td>GE</td>
<td>2012</td>
</tr>
<tr>
<td></td>
<td>75.8</td>
<td>27.0</td>
<td>845</td>
<td>17.3</td>
<td>First Solar</td>
<td>2011</td>
</tr>
<tr>
<td>Cd₂SNO₄; CdS:O</td>
<td>75.5</td>
<td>25.9</td>
<td>845</td>
<td>16.5</td>
<td>NREL</td>
<td>2001</td>
</tr>
<tr>
<td>Heat CdS in H₂; HRT layer</td>
<td>74.5</td>
<td>25.1</td>
<td>843</td>
<td>15.8</td>
<td>USF</td>
<td>1993</td>
</tr>
</tbody>
</table>

Comments: FF, v0, Jsc, FF, Eff, Team

CfTe Records and Technical Progress