



Let there be light:

SCRISE

So Cal Research Initiative for Solar Energy

SC-RISE Summary

- The unique idea of SC-RISE is its ***vertical integration*** of all aspects of solar energy:
 - **Research:**
 - Devices, thermal materials, biomass, solar fuel (H₂), systems
 - **Prototyping/Applications:**
 - Integration; prototype evaluation; solar applications
 - **Education/Training/Demonstrations:**
 - Training at the collegiate, practitioner, and precollege levels
 - Partnerships with UCR-Extension, CBU, community colleges, unions, workforce investment boards, and others

SC-RISE Prospective Participants

Unions/Trade Assns.

- * Installation training
- * Maintenance and operations training
- * Worker retraining

Utilities

- * Technology assessments
- * Resources to assist customers in energy decisions
- * Future employees
- * Life-cycle analyses



Alternative energy developers

- * Collaboration on new technology with academia and government
- * Reliable evaluations

Academic institutions

- * Trade/scientific/professional articulation
- * International connections
- * K-12 and public outreach

Cutting-Edge Fundamental Research...

- **Solar Devices**

- High performance superlattices, polymer carbon nanotubes, amorphous Si thin films

- **Solar Thermal**

- Materials research, new CSP and CPV designs

- **Biomass**

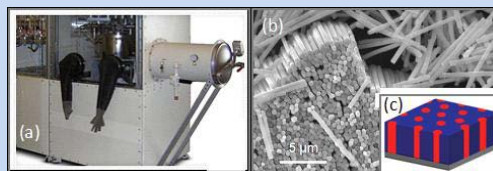
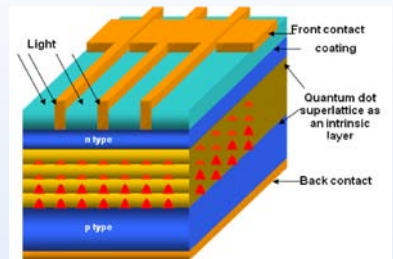
- Conversion of biomass to liquid fuels

- **Hydrogen as a Solar Fuel**

- Hydrogen can be produced by electrolysis, used as energy storage, low-cost fuel cells to convert back to electricity

- **Solar Energy Systems**

- Measurement, control, smart grids



Future Solar Research

- Collaboration with Tohoku on amorphous Si PV cells (NSF)
- Biomimetic and bio-inspired fabrication of photovoltaic materials and devices (DOE, NSF)
- Integrated energy storage (DOE, NSF)
- Solar energy for transportation (DOE, EPA, California Air Resources Board, California Energy Commission)
- Biomass Conversion (DOE)
- Solar fuel: low-cost hydrogen fuel cells (ARPA-E)

Student research/design projects

- Solar electric car
- Concentrated solar thermal testbed
- Solar PV tracker
- Solar thermal tracker
- etc...



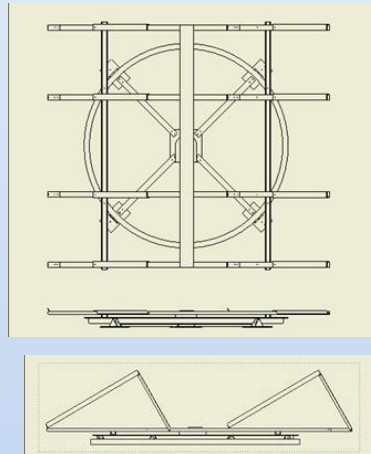
Prospective Education/Training Partners

- UCR engineering coursework and research
- UCR Extension programs (green energy cert.)
- California Baptist University
- Riverside Community College
- Chaffey College
- San Bernardino Community College District
- College of the Desert
- others...



Industry Partnerships...

- Partnerships are growing quickly, a few examples:
 - Thermal Energy and Storage
 - Design and testing of a concentrated solar power Linear Fresnel Reflector (LFR) testbed system
 - Design and testing of concentrated PV testbed system
- Best way to get involved: **Corporate Partners Program**



Future Direction...

- Expansion of Corporate Partners Program
- Research Seminar Series
- Summit meeting focused on education/training programs
- Grow solar research programs

