
ISC
International Solar Energy
Research Center Konstanz
research for a sunny future

the ISC Konstanz

We are a non-profit research institute, founded in 2005 by scientists with long-term experience in the area of crystalline Si-based photovoltaics.
Our primary aim is to contribute to the further decrease of electricity generation costs of Si-based photovoltaics.
In this way, we want to promote the wide-spread use of this technology.

Therefore, we cooperate with leading companies and research facilities of the PV-sector.

ersol

centrotherm

sunways
Photovoltaic Technology

R|E|N|A

pv crystalox solar

City of Konstanz

SEFAR

BACCINI
speedy thinking

SEMILAB

POLYMER KOMPOSITER

Alice Wartemann Stiftung, CH
Prof. Ernst Bucher (private sponsor)

MICRON
DAS SIEB FÜR PERFEKTIONISTEN

Elkem Solar

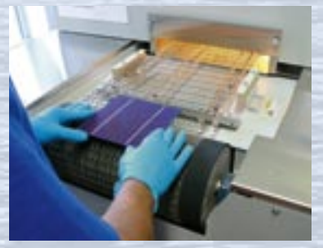
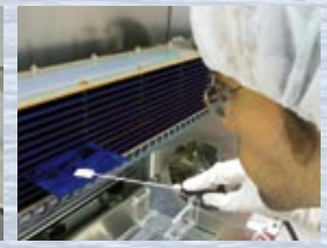
STADTWERKE KONSTANZ

research & development

We optimise existing and develop new processing steps for today's and tomorrow's industrial solar cells. Our focus is on crystalline silicon wafer based technology, working with both traditional poly silicon and novel solar grade silicon materials.


Development and optimisation of single process steps for standard industrial solar cells:

- Wet-chemical processing
  (e.g. texturing, diffusion, contact formation)
- Diffusion engineering
  (selective emitter and local back surface field formation,
  lowly doped emitters, advanced gettering)
- Novel passivation approaches
  (SiC, SiCN, gradient layers, coloured solar cells
  for building integration)
- Improved metallisation
  (fine-line printing, plating, paste development)

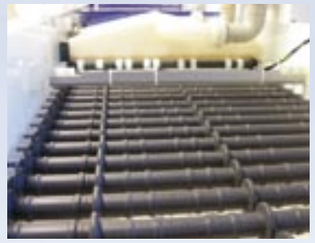
Advanced solar cell concepts and manufacturing, such as:

- N-type solar cells (front and rear junction approaches)
- Structures with open rear contact
  (mono- and bifacial application)
- Rear-contacted devices (MWT, EWT, IBC)
- Devices adapted to light injection (0.01-10 suns)
- Development of prototypes with our industrial partners

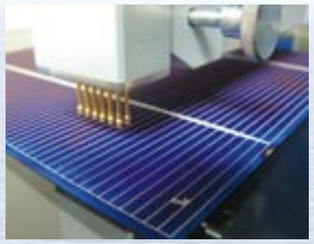
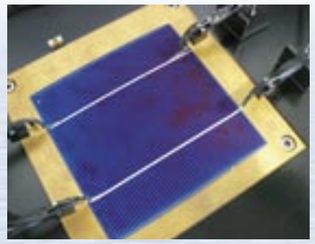
testing & characterisation

The investigation and successful application of novel feedstock materials (n-type Si, solar grade Si), cell concepts and processing technologies depends on profound understanding of material and device physics.

We therefore apply a wide range of testing and characterisation methods.

- Evaluation of silicon feedstock by characterisation of
  solar cells produced thereof using variable processing steps
- Development and testing on novel processing tools
- Loss analysis of solar cells

- Degradation tests and cell stabilisation
- Development of new characterisation -methods
  and -equipment
- Small-series production of special as well as partially-processed
  solar cells for experimental purposes, applying customer-defined
  processing steps

training & education

The most important factor for the dissemination and growth of photovoltaics is wide-spread know-how of people involved in PV.

Based on our long term experience, we organise training courses of different levels for technicians, engineers, students and scientists including theoretical and practical lessons and participate in international workshops.

We offer to:

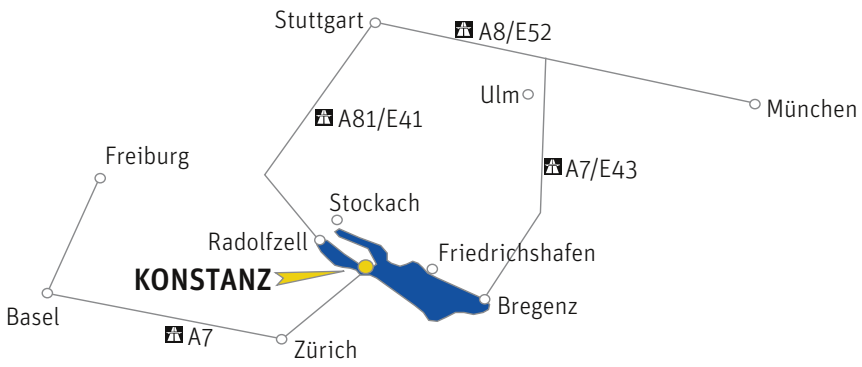
Companies:
- Training of staff and customers in solar cell and process
  technique
- Independent expertises

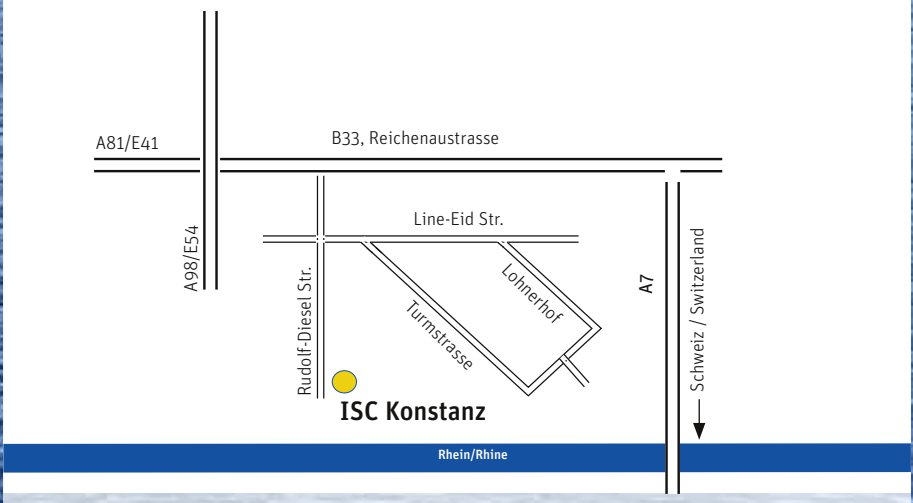
Students:
- Education of PV experts in cooperation with universities:
  diploma/master and PhD thesis
- Internships

Public and financing sector:
- Independent expertises

our objectives

- Independent non-profit organisation, in part publicly funded
- Leading position in crystalline silicon photovoltaics research
- Close collaboration with the whole PV sector
- Platform for research and development, testing and characterisation, training and education
- Dissemination of photovoltaics, e.g. by donating solar cells from our research projects for the benefit of poor people in non-electrified areas





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