

# Renewable Energy

## Technical solutions wanted!

### Solar Heat

#### Solar collector structure

- Flat collector
- Tube collector

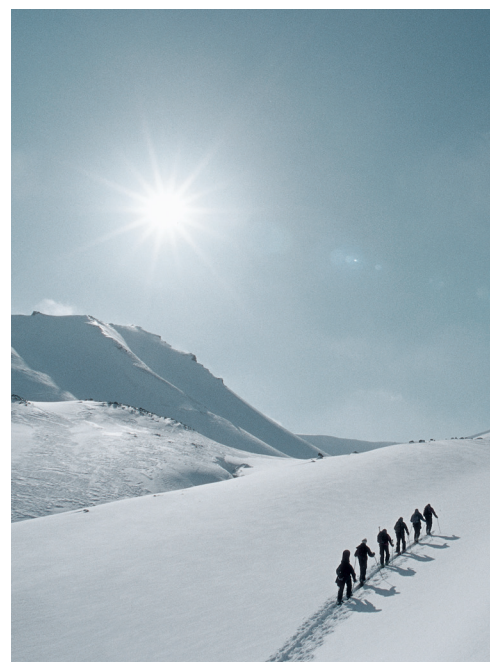
Solar heat pump

#### Absorber

- Panel absorber
- Manufacturing technology
- Substrate
- High-temperature stable heat carrier
- Mirror
- Structure incl. inlet and outlet pipe
- Anti-stagnation

#### Collector glass

- Anti-Reflex-Coating
- Transmissions enhancing coating
- Insulating glass (esp. vacuum-sealed)
- Ultrathin glass
- TCOs and substitute
- Anti-stagnation
- Self-purifying coating
- currently no focus on: selective coating)



### Photovoltaic

#### Inorganic thick layer photovoltaic

- Module structure (esp. prevention of breakage)
- Prevention of loss
- Contacting
- (currently no focus on: material)

#### Hybrid systems (inorganic / organic)

Dye Solar Cell

Organic Photovoltaic

#### Inorganic thin layer photovoltaic

- Coating & processing
- Prevention of loss
- Material (esp. chalcopyrite, material combinations  $\mu\text{-Si}$  & contaminated Si, germanium)
- Multi spectral cells
- (currently no focus on:  $\mu\text{-Si}$ , gallium arsenide)

### Technology Fields

Chemistry / Food

Medical Technology

Renewable Energy

Engineering / Automotive

Biotechnology / Pharma

### Hybrid: Solar Heat / Photovoltaic

### Energy Storage

#### Solar Heat (thermal)

- Storage layer (esp. design, packing)
- PCM-storage (esp. material)
- Other

#### Combination heat / stream

#### Solar Heat (electrical)

- Li-Ion battery
- Electrolyser (production of  $\text{H}_2$  from stream)
- Redox-Flow-Battery
- Compressed air reservoir
- Hydrogen storage
- Turbine that work with  $\text{H}_2$
- Flywheel energy storage
- Fuel cell
- (currently no focus on: pump storage)



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