

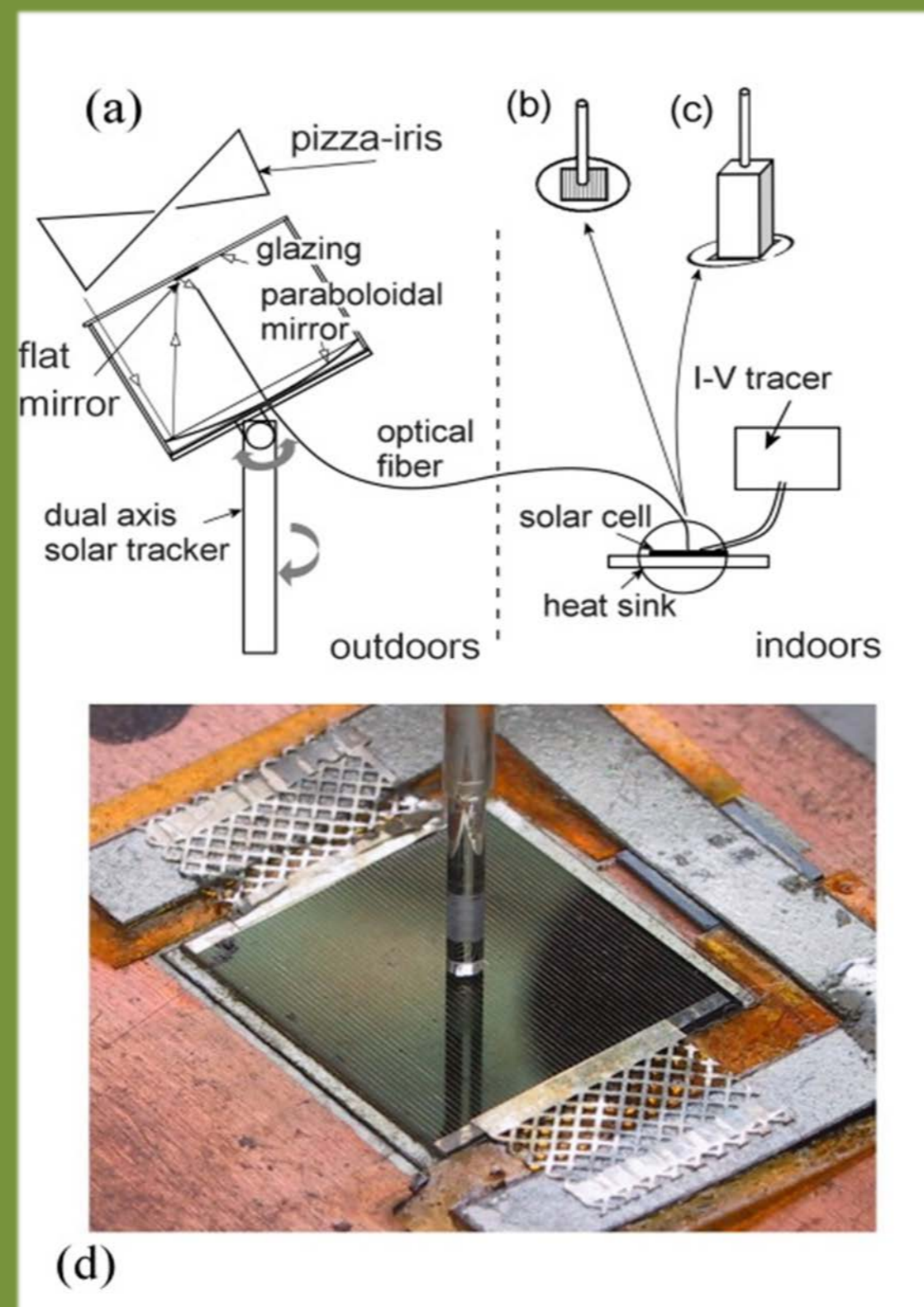


Solar Optics Laboratory



The Swiss Institute for Dryland Environmental and Energy Research
(a selection of future and continuing research)

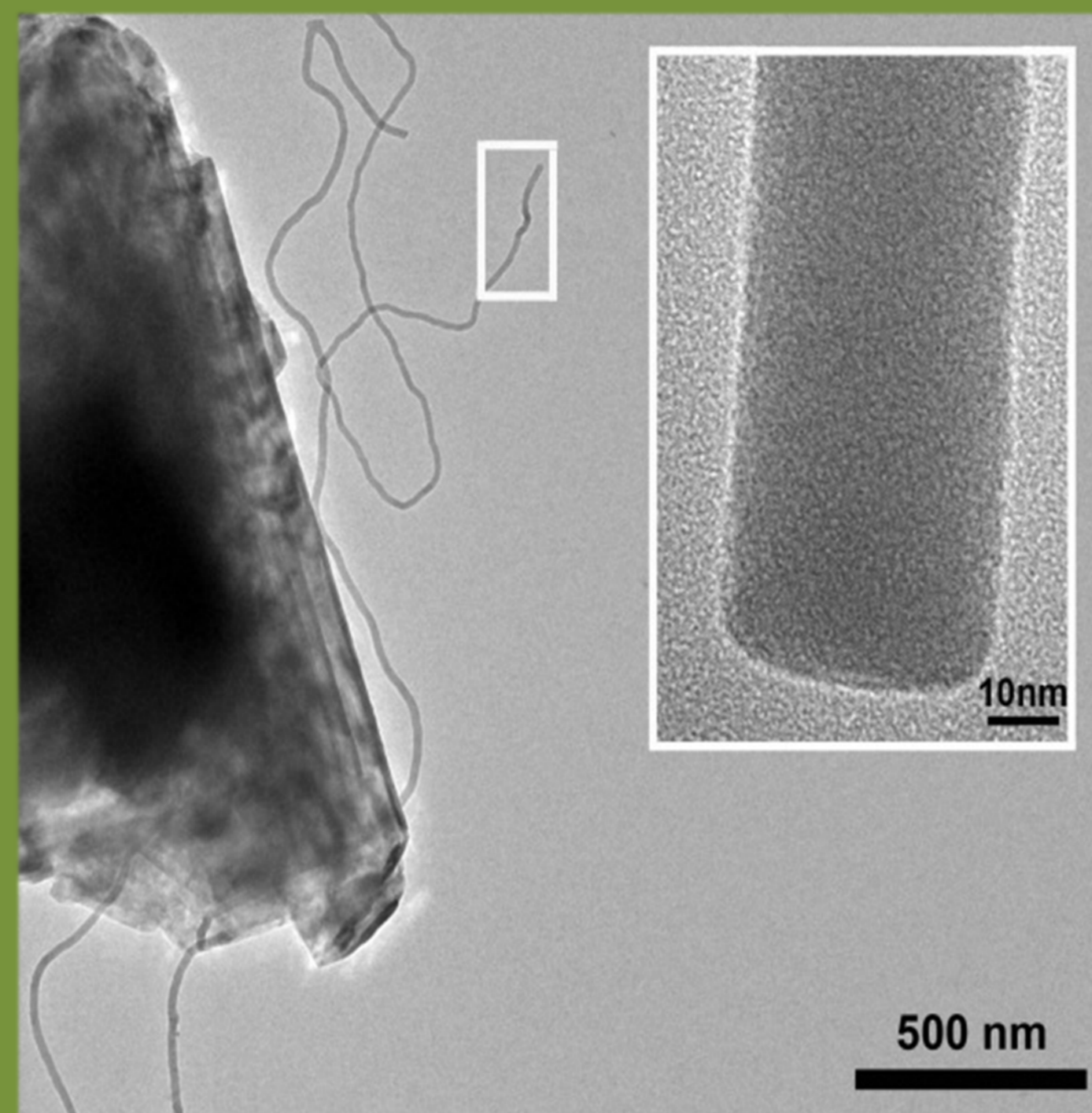
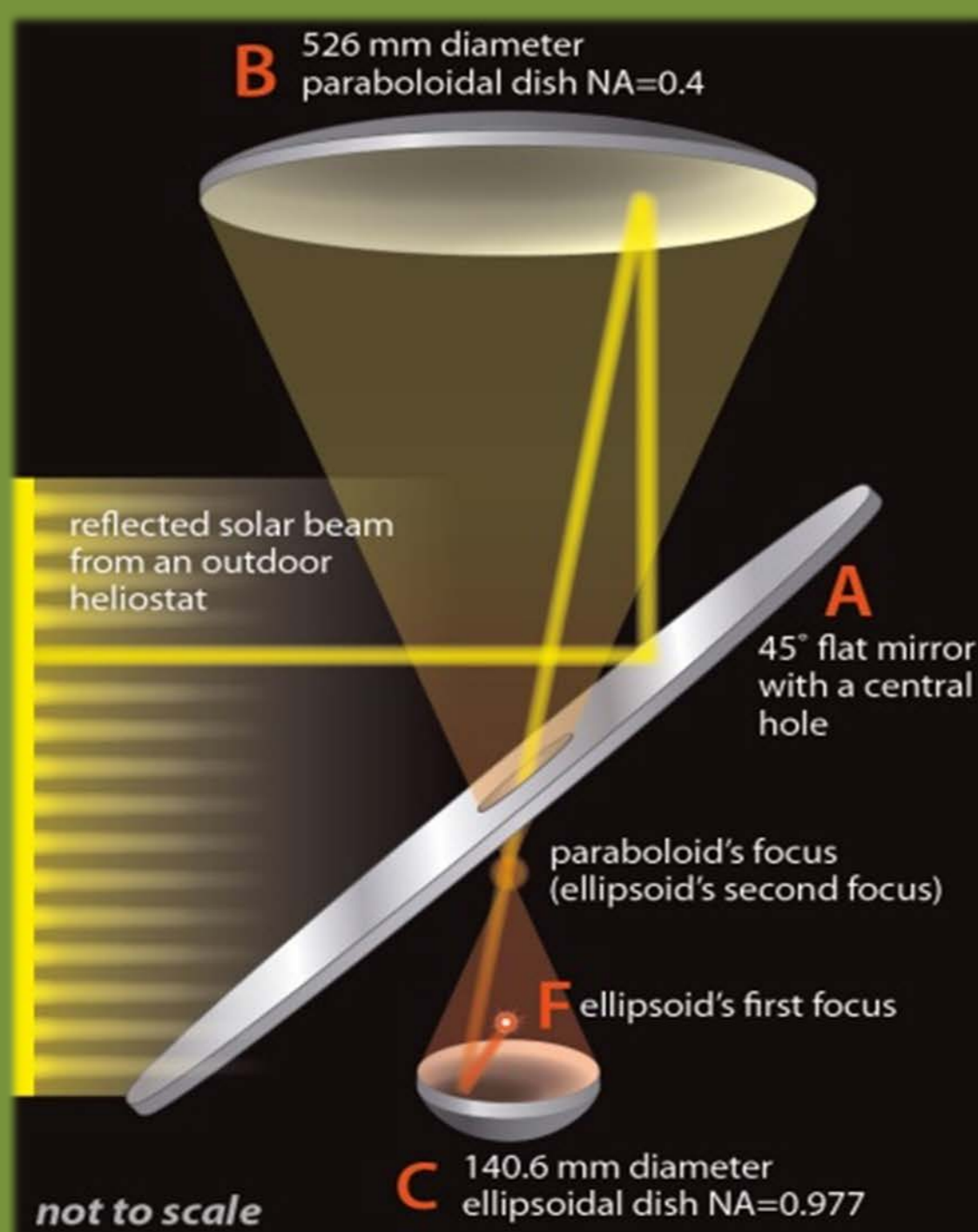
Photovoltaic characterization of concentrator solar cells



We determine macroscopic parameters that characterize and analyze photovoltaic performance, including their spatial and temperature dependence of high-efficiency concentrator solar cells.

Spectrometers, monochromator, current-voltage tracers, thermo-electric cooling systems, lock-in amplifier, and optical tables are necessary tools for this kind of research.

Synthesis of inorganic nano-materials by solar ablation



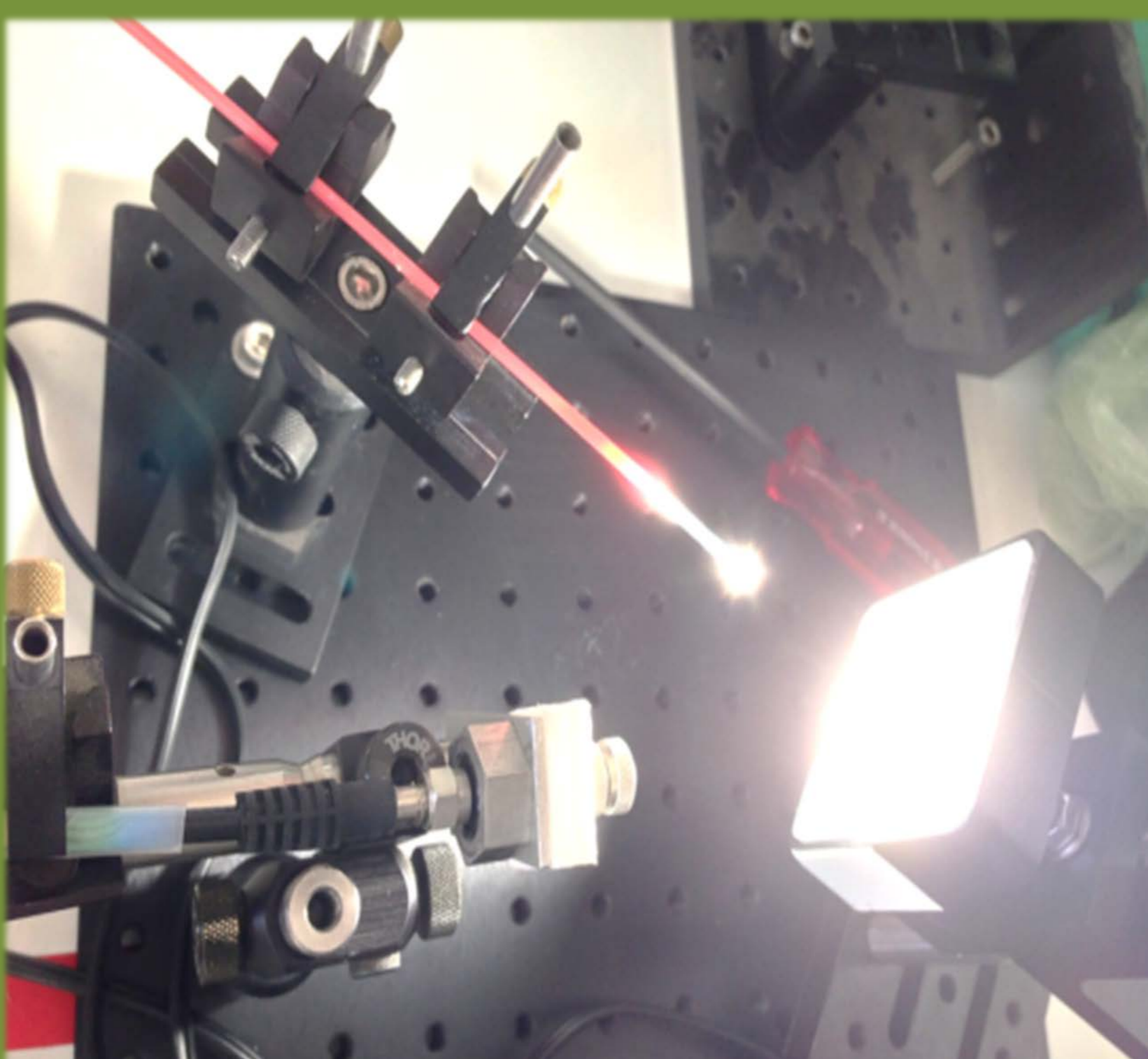
Solar furnace: at right schematic, at left implementation.

SiO₂ nanowires without chemistry

Ongoing collaboration with Weizmann Institute of Science where currently all analyses are performed. A transmission electron microscope (such as the LVEM5 below) is a necessity for an efficient and modern laboratory we intend to build.



Photothermal coatings based on functional nanomaterials for the efficient conversion of solar energy



Ongoing collaboration with Hebrew and Tel Aviv University. Spectrally selective photothermal coatings are an essential element in increasing the efficiency of high-temperature Concentrating Solar Power (CSP) systems. Requires sensitive broad range wavelength spectrometers and a large integrating sphere (such as shown right) to measure emissivities while samples are at high temperature.

