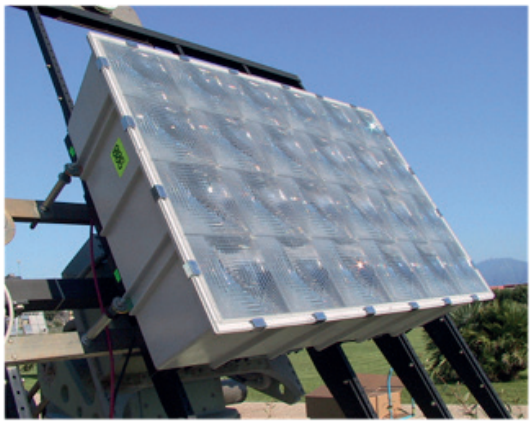
NACE CODE D35

DESIGN AND DEVELOPMENT OF CSP OPTICAL DEVICES

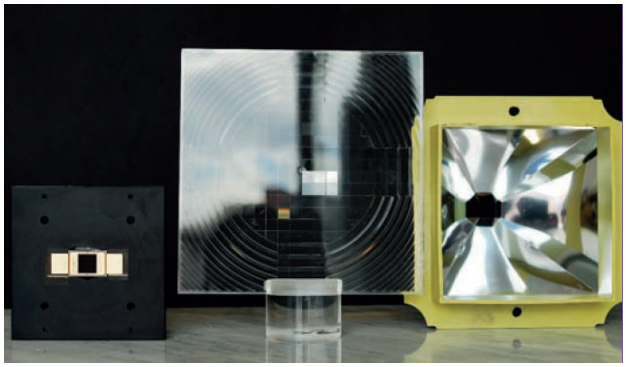
Innovations and Benefits - Developing optical devices allows to concentrate direct solar radiation (DNI) on an area of even 1000 times smaller than the area of incidence. This allows to best use high-efficiency photovoltaic cells (multi-junction) by building modules with a conversion performance of about 35%. The benefits of such technology are: higher energy efficiency; dramatic reduction of the capturing area required; and a potential cost decrease due to the lower amount of photo-active material used (an expensive component of a photovoltaic module).

Uses - Development of systems for building concentrated solar photovoltaic modules. Photovoltaic modules manufacturers, electric power providers.

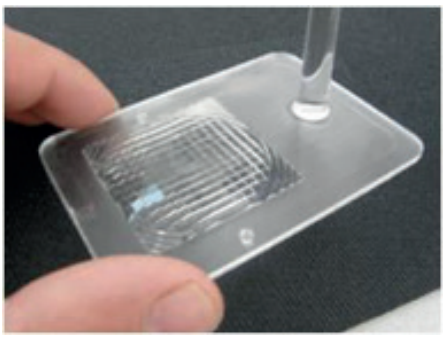
Past and Present Activities - Collaborations are underway with Pirelli, and BECAR/Beghelli for the development of components and facilities



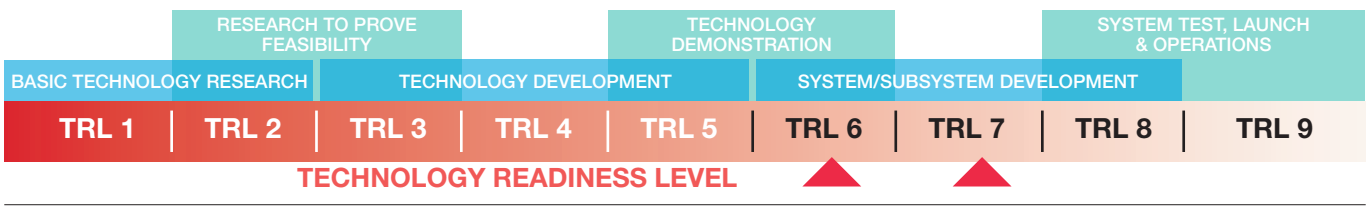
Concentrated photovoltaic module



Receiver with small-sized cell (left) where sun beams concentrate thanks to the primary optical collector (centre) and the secondary collector (right



Primary hybrid refractive lens (ENEA patent)



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