

# Concentrating solar collector development for solar cooling applications

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## ***Abstract***

Within the Department of Energy Engineering "Sergio Stecco" was developed and built a solar field with PTC prototypes for testing with medium temperature pressurized water, optimized for SHC systems. In this paper is shown the solar field prototype, consisting in a row of 20m PTC collectors, with total area of 42.3m<sup>2</sup>. The row consists of four collectors whose metallic structure incorporates the reflective surface, in the current configuration are tested two types of reflective material. PTC's absorber is not evacuated. The single-axle tracking system, consisting of gear motor in line with the collectors, was designed for wind speeds of 14m/s, in order to obtain the minimum angular clearance.

Moreover the research activity focused on the development of a dedicated control system and two types of solar tracking; tracking of the sun is done both with dedicated sensors, developed inside the department, and through Astronomical calculations; also has been developed logical of operation that can combine both systems. Monitoring of solar radiation and meteorological conditions is done with dedicated weather station. Some first tests on solar field are shown.