# New Solar-Powered Device from ETH Zurich Reaches Temperatures Above 1,000°C, Paving the Way for Cleaner Industrial Processes



Researchers from ETH Zurich have developed a new solar-powered device that can achieve temperatures over 1,000°C, potentially replacing fossil fuels in heavy manufacturing industries. This proof-of-concept technology utilizes synthetic quartz crystals attached to a silicon disk to trap solar energy through a phenomenon known as the thermal trap effect.

When exposed to concentrated sunlight, the device can reach 1,050°C at one end and 600°C at the other, demonstrating a significant improvement over previous methods that managed only up to 170°C. This breakthrough, described in a study published in the journal *Device*, could provide clean energy for carbon-intensive industries, such as metal, cement, and chemical manufacturing, which currently rely heavily on fossil fuels and account for nearly a quarter of global energy consumption.

The researchers are continuing to optimize the thermal trap effect and are exploring even higher temperatures with different materials. They aim to prove the economic viability and scalability of this technology to encourage its adoption in industrial processes.