

Infrared lamp apparatus

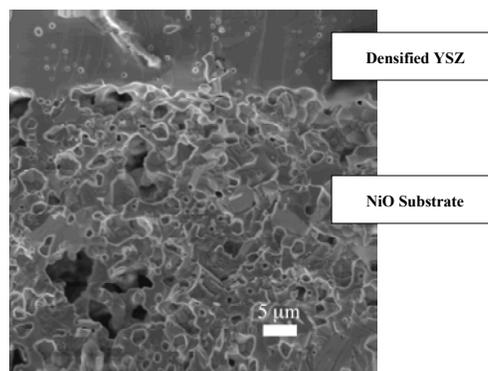
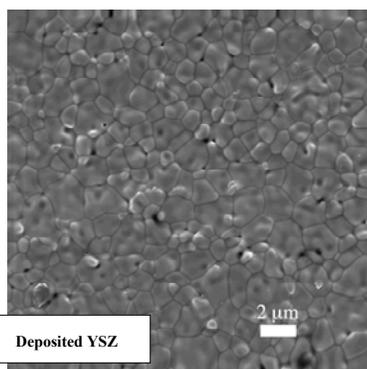
Oak Ridge National Laboratory has developed a high-density infrared process to produce coatings on a multitude of surfaces.

The high density infrared process utilizes a unique technology to produce extremely high-power densities of 3.5 kW/cm² with a single lamp, which is currently the most powerful one in the world.

Instead of using an electrically heated resistive element to produce radiant energy, a controlled and contained plasma is utilized.

The use of the IR plasma facilitates rapid solid-state sintering.

In this approach, YSZ is rapidly sintered at elevated temperatures with round trip cycle times from room temperature to 1400°C of less than 60 minutes.



This method has demonstrated that

- YSZ could be densified in continuous coatings with processing times of approximately 8 min
- Micro-porosity was eliminated through process development

[Read more about this work.](#)