

## Paper Titles

# Determination of the Temperature Dependence of the Thermal Conductivity Coefficient of Plasma-Sprayed Coatings Based on Zirconium Dioxide in the Temperature Range up to 1100 °C

[illegible]

The temperature dependence of the thermal conductivity of plasma-sprayed  $\text{ZrO}_2$ -5 wt.% CaO, (ZrO<sub>2</sub>-5 wt.% CaO)-10 wt.% Ni, and (ZrO<sub>2</sub>-5 wt.% CaO)-30 wt.% Ni coatings was investigated. A combined experimental and numerical approach was employed, comprising specimen heating with a propane-oxygen torch with in situ temperature field measurements and numerical simulation using COMSOL Multiphysics®. Thermal conductivity was calculated via an iterative solution of the inverse heat conduction problem. It was found that thermal conductivity increases with increasing Ni content: for the ZrO<sub>2</sub>/CaO ceramic coating, thermal conductivity in the temperature range 20–1100°C ranged from 0.76 to 1.22 W·m<sup>-1</sup>·K<sup>-1</sup>, whereas for the metal-ceramic coatings

containing 10% and 30% Ni, the values were 1.11–1.87 W·m<sup>-1</sup>·K<sup>-1</sup> and 1.71–4.18 W·m<sup>-1</sup>·K<sup>-1</sup>, respectively. These results provide valuable insights for the design and optimization of thermal barrier coatings.

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