

## **Dominique Billieres, Saint-Gobain Coating Solutions**

**Title:** “Introducing Cord Plasma Spray (CPS) : A possible alternative to Suspension Plasma Spray (SPS)”

### **Co-Authors:**

- Mr Dominique Billieres, Saint-Gobain Coating Solutions, France
- Dr Geoffrey Celeste, Saint-Gobain Coating Solutions, France
- Mr Cédric Bricquet, Saint-Gobain Coating Solutions, France
- Prof. Shrikant Joshi, University West, Sweden
- Mr Stefan Björklund, University West, Sweden

### **Abstract:**

Feeding very fine particles into the plasma spray process has been the main motivation for working on the suspension plasma spray (SPS) process since more than 2 decades and it has delivered exciting advances such as columnar microstructures, fine and dense layers, or also coatings with specific crystalline phases that cannot usually be retained via thermal spray. All these results led to a constantly growing interest of the research community and to many potential industrial applications. But the implementation at industrial scale of SPS technology can also be challenging, due to a greater process complexity than APS and to challenges related to suspensions formulation, stability, liquid solvent handling or process instabilities.

This presentation will introduce a breakthrough technology in thermal spraying of very fine and non-flowable powders spraying: the cord plasma spray (CPS). The authors could obtain all the spectrum of interesting microstructures by combining specifically developed YSZ cords (containing very fine powders) with the axial injection torch AXIAL III® (from *Northwest Mettech Corp.*) and a specific feeding device. The expected advantages of this new approach could be confirmed and will be presented, as well as its perspectives and potential for industrial applications.

### **Biography:**

Mr Dominique BILLIERES – Having an Engineering degree in Ceramics & a Master of Science from Limoges University, Mr Dominique BILLIERES has 32 years of experience in the Thermal Spray industry. During his career, he has been involved in developments related to thermal spray processes, equipment design, and feedstock materials. He has authored or co-authored 11 patents in the field of Thermal Spray and has participated to several industrial developments involving thermal spray process.

Mr Dominique BILLIERES has held several positions since he joined Saint-Gobain in 2000, within the Coating Solutions Business Unit such as R&D manager, Europe Business Manager and is now Director of Business Development for this business unit and is also member of the board of TSS since 2022.