

Preface

This volume contains the proceedings of the **33rd Surface Modifications Technologies Conference – SMT 2019** held in Naples from June 26-28, 2019 and organized by the Department of Chemical, Materials and Industrial Production Engineering of the University of Naples “Federico II” and the Department of Industrial Engineering of the University of Salerno.

This conference is held each year and has been held in various venues in USA, Asia and Europe over the past 33 years

SMT33 covers the progress on all aspects of surface modification techniques, from both the macroscopic and microscopic viewpoints. The conference represents interest in both industrial materials, e.g., metals, alloys, polymers, ceramics, composites, and advanced materials and processes under development or used in specific applications. The conference brings together users, producers and researchers, both engineers and scientists who have a common interest in various aspects of surface modification. The objective is to facilitate and encourage the exchange of knowledge and experience among different communities involved in using, improving, developing, assessing and conducting basic and applied research in various aspects of coatings.

The proceedings represents more than 150 oral presentations and 80 full research papers and experts from more than 40 Countries attended the conference and had fruitful discussions.

The papers included in this Volume deal with the following topics:

- Additive manufactured surfaces
- Biomedical coatings and surfaces
- Characterization of engineered surfaces
- Cold and thermal spray
- Conversion coatings
- Electric and photovoltaic coatings
- Magnetic coatings
- Electro and electro-less plating
- Functional coatings
- Fluidized bed based surface treatments
- Hard chromium alternatives
- High-temperature corrosion protection
- Hydro-/ice- and oleo phobic/philic
- Laser and PTA cladding
- Laser beam surface modification
- Modelling and simulation of coating microstructures
- Multifunctional coatings surfaces
- Shot peening and mechanical treatments
- Novel surface modification techniques
- Optical coatings
- Residual stresses

- Sol-gel surface coatings
- Severe plastic deformation processes
- Thermochemical surface engineering
- Thin film by PVD, CVD, and ALD
- Tribological coatings
- Wear and corrosion protection
- Anodizing and electrochemical behavior
- Tribological Characterization of surfaces
- Fluidized bed based treatments
- Surface Treatments of Additively Manufactured Components
- Metallurgy of Surfaces
- Nanostructured Surfaces
- Cold Spray

The keynote speakers included; Prof. Piero Salatino, from the University of Naples “Federico II”; Prof. Jordi Sort from the University of Barcelona; Dr. T.S. Sudarshan President, Materials Modification Inc. (USA) and Prof. Edoardo Bemporad from the University of Roma 3.

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