

5th Cold Gas Spray Summer School 2019

YOU ARE WELCOME

Scientists, engineers, techno-entrepreneurs, product developers and design engineers, product marketers, lecturers, managers and students who are interested about knowing the recipe of CGS for protecting and enhancing product surfaces for diverse applications.

The target is to have a **maximum of 30 people** attending the Summer School.

17th-18th JUNE

BARCELONA, SPAIN

Organized by: More information:

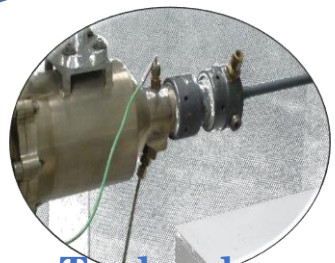


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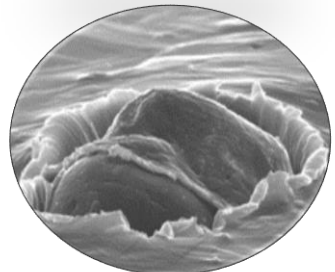
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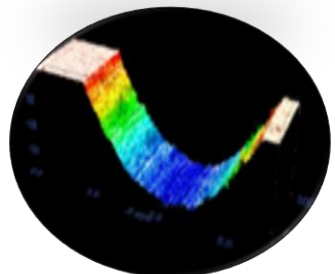
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Facultat de Química



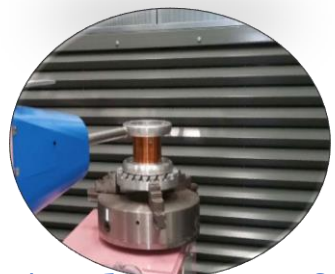
Technology
Fundamentals



Process conditions



Modelling & Testing



Applications &
Case Studies



Objective

The objective of this course is to introduce the recipe of the emerging Cold Gas Spraying (CGS) technology for protecting and enhancing surfaces of industrial products.

The principal attribute of this novel technique lies in its capability of producing tailor made properties of coatings by optimizing the performance of the substrate, the material to be deposited and the process design parameters for a multiplicity of industrial applications.

An **interactive session** based on **real-life case studies** and **demonstrators** will illustrate the potential of Cold Gas Spray (CGS) process and focus on the problems and future challenges of the Thermal Spray technology in today's competitive world.

Who Should Attend?

Scientists, engineers, techno-entrepreneurs, product developers and design engineers, product marketers, lecturers, managers and students who are interested to know the recipe of CGS for protecting and enhancing product surfaces for diverse applications. The target is to have a **maximum of 30 people** attending the Summer School.

What is included?

The course fee includes:

- Printed course materials
- Course certificate
- Lunch during the two days of the Summer School
- Formal summer school dinner (17th June)
- Displacements to venue

Course fee: € 950,00 + VAT

If you are interested in join the 5th CGS Summer School contact @ Dr. Irene Garcia Cano by email: igcano@cptub.eu



Programme Basic Contents

Introduction

Basic background and evolution of CGS ; Fundamentals and Technology Key Definitions

Rudiments of Solid State Coatings and Surface Mechanics

Introduction; Interfaces and stabilities in solid state; Surface temperatures in moving bodies; Stress and deformation fields in half-space and layered elastic media; Thermoplasticity and viscoplasticity; Perfect plasticity; Rough surfaces.

CGS Fundamentals and Operational Parameters

Particle velocity; Spray distance; Feeding rate; Spray angle; Temperature; Substrate

CGS Processes and Equipment

Low Pressure Cold Gas Process and Equipment; High Pressure Cold Gas Process and Equipment; Gas influence and selection

CGS Feedstocks/Materials and Quality Control

Classification of TS feedstocks/ Materials; Microstructural aspects of TSCs; Feedstock attributes; Selection of feedstocks/materials for TS processes

Testing and Quality Control for CGS Coatings

Metallographic preparation and structure characterization; Mechanical tests; Corrosion tests; Wear test; International standards for testing; Significance of testing standards

Applications of CGS Processes

Case histories and process economics; Case histories: Corrosion, electronics, rebuilding, niche applications; Control; Cost assessment of CGS processes and equipment

Speakers:

Assadi, Prof. H.	Brunel University London, UK
Bolelli, Dr. G.	University of Modena and Reggio Emilia, ITALY
Dosta, Dr. S.	Thermal Spray Centre (CPT), SPAIN
Fukanuma, Dr. H.	Plasma Giken, Japan (co-sponsor)
Guilemany, Prof. J. M.	Thermal Spray Centre (CPT), SPAIN
Hassani, Dr. Mostafa	MAE Department, Cornell University, USA
Helmut P. Hoell	VRC Metal Systems, L.L.C.
Klassen, Prof. T.	Helmut-Schmidt-University, GERMANY
Pawlowski, Prof. L.	President of ETSA. University of Limoges (SPCTS), FRANCE
Plicht, Dipl. -Ing. Guido	Air Products, GERMANY (sponsor)
Richter, Dipl. -Ing. Peter	Impact Innovations, Germany (co-sponsor)
Rozema, Mr. Klaas	Dycomet, Netherlands (co-sponsor)
Sanchez, Dr. J.	Thermal Spray Centre (CPT), SPAIN
Villa, Dr. M.	Helmut-Schmidt-University, GERMANY
Vuoristo, Prof. P.	Tampere University of Technology (TUT), FINLAND

with participation of:



Tentative Program:

MONDAY, 17th

9:15-10:00	Cold Gas Spray against Conventional Thermal Spray Processes. Prof. J.M. Guilemany
10:00-10:45	General Principles and Process Science. Prof. T. Klassen
10:45-11:15	coffee
11:15-12:30	Basic Coating Formation. Theoretical and practical aspects. Dr.S.Dosta
12:30-13:15	To be confirmed. Dr.M.Hassani
13:15-14:15	lunch
14:15-15:00	Feedstock for CGS. to be confirmed
15:00-15:45	CGS Gases: Modes of supplying, characteristics and enable equipment. Dipl. Eng. G. Plicht
15:45-16:30	Modelling and Simulation of Cold Spray Deposition. Prof. H. Assadi
16:30-17:15	Systematic Optimization of Process Parameters for Best Performance. Dr. T. Klassen
17:15-18:00	Round table
18:00	bus to hotel
20:00	social dinner

TUESDAY, 18th

10:00-10:45	CGS Coatings Structural & Properties Characterization. Prof. L. Pawlowski
10:45-11:30	Assessment of CGS coating qualities. Dr. G. Bolelli
11:30-12:15	CGS High Performance Coatings, Dr. S. Dosta
12:15-13:00	CGS Economics. Dr. J. Sanchez
13:00-14:00	lunch
14:30-15:00	CGS Low Pressure, DYCOMET, Mr. K. Rozema
15:00-15:30	CGS Low Pressure Case Studies on Industrial Sectors, Prof. P. Vuoristo
15:30-16:00	CGS High Pressure: Equipment & Performance, IMPACT INNOVATIONS, Ján Kondás
16:00-16:30	CGS High Pressure: Equipment & Performance , PLASMA GIKEN. Dr. H. Fukanuma
16:30-17:00	Selected Application Examples and Performance of Cold Spray Coatings. Dr. M. Villa
17:00-17:30	Computer Aided Optimization of CGS parameters, Dr. S. Dosta
17:30-18:00	Understanding CGS Coatings on Different Substrates, Dr. S. Dosta

with participation of:



Thermal Spray
Centre



5th Cold Gas Spray Summer School

Venue:

Finca Pedro Pons (Vallvidrera Avenue, 25)

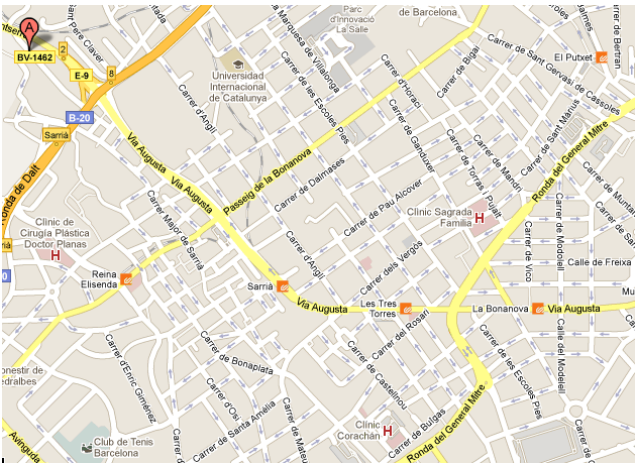


The sgraffito take up the north and south facades, and one of them boasts a sun dial which dates from 1776, which could be when the sgraffito were made. The masia were restored in 1960, and once again in 2000, offering an ensemble with a quality similar to those still left in the Sarrià area.

On the upper roof, the weather cock features a patufet*. It was made of iron, with very strong gears, and has been working for more than 50 years. While the whole unit may seem bulky, it moves very fast on windy days.

The **Agustí Pedro i Pons University Foundation** was declared its universal heir by the Most Excellent Dr. Agustín Pedro Pons in his last will and testament on September 9, 1960. In this will he bequeathed the Vallvidrera de Can Mestres' Property, located in Av. Vallvidrera, 25-29, to the University of Barcelona.

The masia (traditional catalan farmhouse) of Can Mestres is well-known by many passers-by thanks to its **sgraffito**, which were probably added to the house built in the 18th Century on the site of another 16th-Century farmhouse.



with participation of:

