

## **European curriculum vitae**

**EUROPEAN  
CURRICULUM VITAE**

**PERSONAL INFORMATION**

Name **NASTRUZZI ANNA**

Home address

Fax

E-mail

Working address

Nationality

Date of birth

**WORK EXPERIENCE**

- Dates (from – to) **1 September 2018 – 28 March 2019**
- Name and address of employer  
Research Group in Metallurgy | Prof. Gian Luca Garagnani  
Dipartimento di Ingegneria, Università di Ferrara | 1, Via Saragat, 44121,  
Ferrara, Italy
- Type of business or sector  
Material properties and tribological characterization

- Occupation or position held Curricular internship
- Main activities and responsibilities Investigating the mechanical and tribological proprieties of 6060 aluminum alloys treated by innovative anodic oxidation processes: GHA® and GHA PLUS®. Practical experience about microstructural analysis techniques with MO and SEM and also pin-on-disk wear tests.

## EDUCATION AND TRAINING

- Dates (from – to) **September 2016 – March 2019**
- Name and type of organization providing education and training University of Ferrara
- Principal subjects/occupational skills covered The Master degree programs provide education at an advanced level for the exercise of highly qualified activities in specific areas. Specialized and professional training in the field of innovative metallic materials, polymers and composites and in corrosion protection. Possible professional profiles in business sectors: R&D, design and maintenance, product development, materials testing laboratory, quality control.
- Title of qualification awarded **Master Degree in Mechanical Engineering**  
Dissertation/thesis title: “COMPORTAMENTO TRIBOLOGICO DI TRATTAMENTI INNOVATIVI DI OSSIDAZIONE ANODICA ESEGUITI SULLA LEGA DI ALLUMINIO EN AW-6060”  
Dissertation/thesis subject: processi e rivestimenti di leghe metalliche  
Thesis supervisor: Prof. Gian Luca Garagnani  
Age at graduation: 24  
Official duration: 2 years  
Final degree mark: 110/110  
Graduation date: 28/03/2019
- Level in national classification Second Level Degree “Laurea magistrale in Ingegneria Meccanica”

- Dates (from – to) **September 2013 – December 2016**
- Name and type of organization providing education and training University of Ferrara
- Principal subjects/occupational skills covered
 

The first level course of study in Mechanical Engineering has the purpose to form professional figures with an adequate mastery of methods and general scientific contents concerning both basic mathematical-physics disciplines and mechanical engineering disciplines, and with a broad scope preparation about methodologies and techniques concerning Mechanical Engineer and Materials Engineering. Aforementioned professional figures will be able to integrate usefully the production and planning activities of companies with a wide productive, commodity-related and administrative diversification, solving problems of average complexity by employing engineering methodologies. General scientific methods and contents supplied both for mathematical-physics disciplines and for mechanical engineering disciplines are aimed to continue the educational path, through second level courses of study.
- Title of qualification awarded **Degree in Mechanical Engineering**

Dissertation/thesis title: "COMPORTAMENTO A CORROSIONE DI COMPONENTI PER PROTESI IN LEGHE COBALTO-CROMO PRODOTTI TRAMITE SELECTIVE LASER MELTING" Dissertation/thesis subject: scienza e tecnologia dei materiali

Thesis supervisor: Prof. Cecilia Monticelli

Age at graduation: 22

Official duration: 3 years

Final degree mark: 95/110

Graduation date: 13/12/2016
- Level in national classification First Level Degree "Laurea in Ingegneria Meccanica"
- Dates (from – to) **September 2008 – June 2013**

- Name and type of organization providing education and training: Scientific High School, LICEO GINNASIO 'L.ARIOSTO', Ferrara
- Principal subjects/occupational skills covered: It is a high school path characterized by scientific-technological studies that allow to understand the technological applications of scientific knowledge at the base of the progress of societies. It allows to deepen the experimental aspects of scientific-technological disciplines through laboratory practices. It provides for the study of information technology, in particular for data analysis with C++ and model building.
- Title of qualification awarded: Scientific High School Level
- Level in national classification: Kind of secondary school diploma: Italian secondary school diploma

**PERSONAL SKILLS AND COMPETENCES**

*Acquired in the course of life and career but not necessarily covered by formal certificates and diplomas.*

**MOTHER TONGUE**

**ITALIAN**

**OTHER LANGUAGES**

**ENGLISH**

- Reading skills: B1: good
- Writing skills: B1: good
- Verbal skills: B1: good

English course in Miami (United States of America) at Nova Southeastern University (NSU) Florida | duration: 1 month

**GERMAN**

- Reading skills: A1: basic
- Writing skills: B1: basic

• Verbal skills

B1: good

SOCIAL SKILLS  
AND COMPETENCES

Rowing Campus Game C.U.S. Ferrara | summer 2010

Rowing at C.U.S. Ferrara Teamwork | duration: 6 years | Participation at the Italian Championship Under 16 and Under 18

Ashtanga Yoga practice | duration: 3 years

Ski and Cycling at recreational level

ORGANISATIONAL SKILLS  
AND COMPETENCES

Voluntary work in parish summer campus educator | summer 2011-2012

Coordination and administration of different university group

TECHNICAL SKILLS  
AND COMPETENCES

### **MATERIALS SCIENCE AND TECHNOLOGY**

Ability to correlate properties and behavior of a material to its microscopic structure. Knowledge of the main properties of materials and tests for the evaluation of their characteristics. Ability to forecast possible variation of mechanical performances when field conditions change for ceramic materials, comprehension of the production technology-microstructure-properties interconnections.

### **METALLURGY**

Knowledge regarding both the principles of the metallographic laboratory practice and the microstructure of plain carbon steels, low and high alloy steels, stainless steels, cast irons, aluminium and magnesium alloys. Ability to perform metallographic investigations, to recognize the microstructure of steels and cast irons under certain heat treatment and supply conditions, and to know how dealing with metallurgical quality control and failure analysis. Specimen preparation and specific critical issues. Bright field and dark field inspections, differential interference contrast and polarized light observations. Microstructural analysis of bulk and surface hardening treatments: hardness and microhardness testing. Fracture surface analysis of tensile, impact strength and fatigue samples: fractography by means of scanning electron microscopy (SEM) and EDS microanalysis. Surface analysis by means of non-contact 3D optical profilometry: data acquisition

and interpretation of the results. Application of image analysis techniques in ferrous and/or non-ferrous alloys. Instrumented impact strength tests and interpretation of the results. Replication of metallic surfaces and non-destructive testing (ultrasonic testing, liquid penetrant testing).

Non-destructive testing and applications: visual inspection, liquid penetrant tests, magnetoscopy, radiography, ultrasonic examination.

Tribological tests in laboratory: measure and characterization of tribological problems. Tribology and tribological system, lubrication, friction and wear mechanisms, adhesive wear, abrasive wear, fatigue wear, fretting.

### **INDUSTRIAL COMPUTER SCIENCE**

Basic Management of Information Technology tools for research and industry, structured programming in Matlab, mathematical problem solving with Matlab.

### **TECHNICAL DRAWING**

Theoretical fundamentals and the regulatory information necessary to understand, to read and to realize a technical mechanical drawing with AutoCAD, intended as geometrical representation of objects.

### **CORROSION OF ENGINEERING ALLOYS**

Experience of laboratory practices to understand the nature of corrosion phenomena on metallic materials, and will help to reduce potential failures/damages due to corrosion. Laboratory practice to understand the nature of high temperature corrosion phenomena and to gain know-how about methods of corrosion prevention/mitigation in a number of environments.

### **POLYMERS AND COMPOSITES**

Basic aspects about the mechanics, design and manufacturing of parts made of polymeric or composite materials. Lectures, computer simulations with dedicated software and lab classes. Experimental determination of thermal transitions by using differential scanning calorimeter (DSC).

Practical exercises by using rheological, thermo-mechanical testing methods of industrial polymers.

### **PRODUCT DESIGN**

Basic knowledge of advanced tools for the analysis and design of industrial products. Safety and reliability of Industrial products. Probabilistic design and numerical methods for reliability assessment. Failure modes investigation and analysis in industrial products (FMEA). Experimental investigation of industrial products performances by Design of Experiments (DOE).

### **COMPUTER AIDED DESIGN OF MECHANICAL STRUCTURES**

Practical applications on computer assisted methods in mechanical design, with particular focus on “matrix structural analysis” and Finite Element Method (FEM). Ability to apply the matrix structural analysis by means of MATLAB software to solve simple truss/beam structures. Ability to use a commercial finite element code for mechanical analysis.

### **STATISTICS AND MODELING OF EXPERIMENTAL DATA**

Modeling by theory of probability and random variables. Data analysis of descriptive and inferential statistics. Parametric and non-parametric hypothesis testing.

### **NUMERICAL THERMO-FLUID DYNAMICS**

Theoretical and practical elements, to agree an aware use of the technologies of Computational Fluid Dynamics in industrial area. The finite elements method (FEM). The finite volume method (FVM) for incompressible fluids. Procedures for the solution of the flow problem: SIMPLE method. Exercises for calculation the temperature distribution in transient and steady regime in 2-D and 3-D domains for different boundary conditions by means to FEM and FVM. Turbulence models based on time averaging.



## **MECHANICAL VIBRATIONS**

Basic knowledge and methods in order to solve technical problems concerning the dynamic and vibration behaviour of mechanical systems. Vibration modelling of the mechanical systems, as well as the analytical, numerical (Finite Element Method) and experimental methods for vibration analysis.

## **STATICS**

Extensive concepts of the Structural Engineering. Ability to calculate internal forces and moments, to analyze the stress state of critical cross-sections and to calculate displacements and rotations at points of interest in a structure.

### **INFORMATION TECHNOLOGY SKILLS**

Operating systems | Windows, Mac OSX, iOS  
Programming languages | C++, Matlab, HTML, Octave  
Word processing | Word, Pages, Mendeley CAD  
softwares | AutoCAD  
Software applications | Powerpoint, Excel, Prezi  
Technical and statistical software | Deform, Ansys, MODDE, Las,  
Winducom, Mountains  
Multimedia | iMovie, ImageJ, iPhoto

### **ARTISTIC SKILLS AND COMPETENCES** *Music, writing, design, etc.*

Amateur photographer, photo processing, graphic designer, social media designer

### **OTHER SKILLS AND COMPETENCES | SELF-EVALUATION** *Competences not mentioned above.*

Autonomy | 10/10  
Self Confidence | 8/10  
Flexibility/Adaptability | 7/10  
Resistance to stress | 8/10  
Ability to plan and organize | 10/10  
Precision/Attention to details | 8/10

Learn continuously | 8/10  
Achievement of objectives | 9/10  
Managing information | 9/10  
Entrepreneurial spirit and initiative | 9/10  
Communication | 9/10  
Problem Solving | 8/10  
Team work | 8/10  
Leadership | 10/10

DRIVING LICENCE(S)

Patent B

#### CONGRESS AND WORKSHOP

- Date|Location 30 May 2018 | Milano
- Name of organization PROMAPLAST srl
- Title/Subject **Exhibition Plast**
  
- Date|Location 24 May 2016| Ferrara
- Name of organization ASM International and University of Ferrara
- Title/Subject **ASM Workshop on Metallography**
  
- Date|Location 19 October 2015| Ferrara
- Name of organization Ducom and University of Ferrara
- Title/Subject **Corrosion and Metallurgy 'Aldo Daccò' Research Centre.'br /'Material Characterization Systems**
  
- Date|Location 25 February 2013| Bologna
- Name of organization Fondazione Marino Golinelli and Life Learning Center
- Title/Subject **DNA Fingerprinting**

Date \_\_\_\_\_

The Declarant

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*In compliance with the European Regulation (UE) 2016/679, I hereby authorize the recipient of this CV document to use and process my personal details for the purpose of recruiting and selecting staff and I confirm to be informed of my rights in accordance to the above mentioned decree.*