

Luigi Vertuccio

Ing. Luigi Vertuccio is 3 –years Tenure-track Assistant Professor of Chemistry, Dept. of Engineering of the University of Campania “Luigi Vanvitelli” since 01/03/2022.

In 2005 he graduated in Chemical Engineering.

In 2008, he obtained Master's degree (II level) in Nanotecnologie dei Materiali Polimerici at the University of Perugia.

In 2017 he obtained the title of PhD in Industrial Engineering at the University of Salerno, with a thesis on “Nano-filled Epoxy Adhesive for Structural Aeronautic Materials”.

From 01/09/2021 to 28/02/2022 he worked as Researcher (RTD/A) in scientific sector CHIM/07 sector 03/B2 (Fondamenti chimici delle tecnologie) at Dept. of Industrial Engineering at the University of Salerno.

Since 2006, he developed extensive experience in many public and industrial researches and projects funded by the European Union (EU), in which he has carried out his active role as holder of research contracts, research grants, PhD student. In particular, he was involved:

- Project “Materials for Integrated Sensors in low cost devices for multi-sectorial applications (Acronym: IMPRESA) funded by Italian Ministry of Education, Universities and Research (MIUR) - Grant Agr. No. DM60704. On-going Grant. (from 01/09/2011 to 31/08/2016).

- Project “Development of eco-compatible materials and technologies” (Acronym: STEP FAR) funded by Italian Ministry of Education, Universities and Research (MIUR) - DAC_PON03PE_00129_Ricerca. Prof. Guadagno is responsible of the activities on Development of smart organic coatings. On-going Grant. (from 01/04/2014 to 31/08/2017).

- European Project - Large-scale integrating project funded under 7th FWP (Seventh Framework Programme) - Call identifier: FP7-NMP-2010-LARGE-4 - Acronym ArtiVasc 3D – Title: Artificial vascularised scaffolds for 3D-tissue regeneration (Grant Agreement N° 263416). The project focused on Development of standard scaffolds for the rational design of bioactive materials for tissue regeneration. (from 01/11/2011 to 31/10/2015).

- European Project (COORDINATION) - (Programme "Transport (including Aeronautics) – Call identifier: FP7-AAT-2012-RTD-1 - Acronym IASS - Title: Improving the Aircraft Safety by self-healing Structure and Protecting Nanofillers (Grant Agreement N° 313978). The project focused on advanced concepts and technologies to enable ‘smart’ maintenance, including lightning protection and self-repair capabilities. Link: http://cordis.europa.eu/project/rcn/103705_en.html; IASS website: <http://www.iass-project.eu> (from 01/09/2012 to 31/08/2015).

- European Project- Partner UNISA - Recently approved proposal of European Project (Programme "Nanotechnologies, Advanced Materials, Biotechnology and Advanced Manufacturing and Processing) - Call identifier: H2020-NMBP-2017-two-stage – Acronym MASTRO - Title: Intelligent bulk Materials for Smart TRanspOrt industries. MASTRO Project aims to develop intelligent bulk materials for the transport sector based on the novel concepts like self-sensing, self-deicing, self-curing, self-healing and self-protection methodologies to increase consumer safety, component, life-span and performance while reducing maintenance and manufacturing costs(from 01/12/2017 – to 31/08/2021).

In the European project (MASTRO), Ing. Vertuccio was responsible for Task 5.1. Thermoset resins, in the form of finished-products (epoxy adhesives) and in the form of intermediate product, (epoxy resin used in CFRP and GFRP components). This Task falls within the activities of WP5 "Intelligent bulk materials design and development". The general objective of WP5 consists in the development of thermosetting materials for specific applications in the aeronautical and automotive sectors and in civil engineering infrastructures, responding to the requirements of an intelligent material with 5 different reactive functions: (self-sensing, self-deicing, self-curing, self-healing and self-protection). In particular, in the context of Task 5.1., Ing. Vertuccio was directly responsible for conferring the self-sensing, self-deicing, self-curing properties to the new formulations that have been gradually developed by the members of the MASTRO consortium (activity carried out from 01-12- 2017 to 31/08/2021).

Recently, Ing. Vertuccio was part of the organizing committee of the “11th EASN Virtual International Conference on “Innovation in Aviation & Space to the Satisfaction of the European Citizens” which was held at the University of Salerno from 1/9/2021 to 4/9/2021.

(https://easnconference.eu/2021/committees/organising_committee). The “EASN conference” is a highly prestigious event in the aeronautical field, which attracts scientific personalities of great importance in the sector and could give favorable inputs to numerous industrial, academic and research realities of national and international importance.

The research activities carried out by Luigi Vertuccio during her career may be classified in the following topics:

- Study of the correlations between chemical-physical properties and structural organization of polymeric materials;
- Design and preparation of new multifunctional materials based on epoxy resin;
- Dispersion of nano-fillers in polymeric matrices;
- Multifunctional materials at low moisture content;
- Development of adhesives, for Aircraft Structures;
- Multifunctional materials filled with nano-structured forms of carbon to increase electrical conductivity;
- Multifunctional materials with self-responsive functionalities as self-sensing, self-heating, self-curing.

Ing. Vertuccio, in the course of her research activity, has started a series of stimulating and fruitful collaborations with internationally renowned experts in the field of structural materials. The synergistic collaboration activity with both European and American research groups, associations and leading companies in the materials sector has produced numerous scientific papers (97) published in high "impact factor" SCOPUS and WOS indexed journals, (many of which he is corresponding author) and different Italian and international patent (14)