Alberto Frache is Full Professor of Materials Science and technology at the Department of Applied Science and Technology of Politecnico di Torino. His teaching activity is dedicated to lectures for Master degree in Materials Engineering on Polymeric Materials Technologies and Polymer degradation and recycling. He is member of Ph.D School in Materials Science and technology and he is one of the teachers of reference for the Master's Degree Course in Material Engineering.

Alberto Frache is a participant of the research group “ALL-Polymer” (acronym for “polymer @ Alessandria branch of Politecnico di Torino) and is actively working in the “Materials Science and Engineering for Innovative Technologies” Institute of Politecnico di Torino and the mainly current research activities of A. Frache are:

studies on polymeric nanocomposites: structural and thermal analysis of different nanofillers (clays, LDH, POSS, carbon nanotubes), preparation of nanocomposites with both thermoplastic and thermoset resins and evaluation of the thermal, thermomechanical and flame retardant properties of the obtained materials.
studies on lowering of the environmental impact of polymer materials bioplastics and natural fillers. The main bio-based polymers both biodegradable (PLA, starch, PHB) and non biodegradable (PA10.10 and 6.10) have been deeply investigated in order to improve their thermo-mechanical performance with the use of natural additives and fillers. Agro-industrial wastes have also been evaluated as fossil polymer additives or as raw material for the design and production of new systems.
studies on degradation, biodegradation and recycling of polymers and biopolymers. The possibilities of recycling polymeric materials used in the automotive and packaging field were evaluated and the study of the recycled material and of the degradation mechanism of polymers were investigated.
studies on polymer materials for 3D printing with FDM technology. Development of filled-polymers based on polypropylene or recycled polymers. Rheology and morphological evaluation.
studies on optimization of in compounding and injection molding polymers processing with a correlation between experimental trials and simulation data using by Ludovic and Moldex 3D software

A.Frache is co-author of 150 peer-reviewed papers in Scientific Journals indexed by the main scientific database with a total of 5400 citations (from Scopus) and an H-index of 40. He is also a co-author of 5 peer-reviewed book chapters and more than 125 conference proceedings. He is also one of the inventors of 5 European patents.

A.Frache was the Scientific responsible of the Research Unit of Politecnico di Torino in the following projects:
H2020 SFS-21B-2020, MINAGRIS: MIcro- and NAno-Plastics in AGRIcultural Soils: sources, environmental fate and impacts on ecosystem services and overall sustainability, 2021-2025
FP7- FRONT- Flame Retardants on Textile”, 2008-2011

Italian national Project MISE Industria 2015, Bando del Progetto di Innovazione Industriale “Mobilità sostenibile”, Project LIVE “Eco-friendly light vehicles optimised for passenger transport” 2010-2014,

Italian National Project PRIN 2008 “New Graphene Based Nanocomposites” 2009-2011*,

Piedmont Regional Project- Sistemi Avanzati di Produzione 2008 “Plasticollars- Industrialization of plastic collars production” A. Frache was responsible for WP1: “Materials Selection and Development” and WP5 “Mechanical characterization”. 2009-2011,

Piedmont regional Project - CIPE D-20 2004 “Development of innovative functional organosilic nanomaterials for polymeric materials” 2006-2008,

Piedmont regional Project - Piattaforma Tecnologica Bioeconomia “Circular Economy in the packaging and automotive sectors for the recycling of PLAStics products from industrial waste and end of life-RECIPLAST” 2019-2021,

Cariplo Foundation Call . “Gaining insights in the microbial degradation of polyethylene plastics to promote efficient bioremediation strategies” (MICROPLAST) 2015-2018,

A.Frache has been also responsible of several research contracts with companies operating in different fields of applications of polymeric materials (eg. ENI, Solvay, Abet laminate, Directa Plus, De Grandi, MCA Technologies, Lavazza SpA)

A.Frache has held the following official positions as Scholar/Visiting Professor in Beijing Institute of Technology, National Laboratory of Flame Retardant Materials, Beijing, (China) in the following periods: November 2014, November 2015, January 2016, September 2016, November 2017 and November 2023 for the Organization of the activities of the Cooperative project: “New environmentally friendly fire retarded polymer materials used in electrics and electronics” and several lectures on BIT University.

Turin, 25 September 2025