

Curriculum Vitae

Alberto Frache was born (25 June 1972) in Genoa, Italy.

- Graduated in Chemistry cum laude in 1997 at the II Faculty of Science of the University of Turin (Alessandria)
- PhD degree in Environmental Science in 2003 at the Department of Sciences and Advanced Technologies of the University Eastern Piedmont.
- Post doctoral position from 2003 to 2004 at the University Eastern Piedmont
- From 01.01.2005 Researcher at the I Faculty of Engineering of the Polytechnic of Turin. The activity of research is carried out at the Department of Applied Science and Technology.
- From 01.01.2014 Associate Professor of Material Science and Technology (Sect. 09/D1 – ING/IND22) at Polytechnic of Turin.

He is involved in the basic and applied research activities on polymeric materials.

The main research activities of A. Frache are:

1. The study of fundamental and functional aspects of inorganic-organic nanocomposites. In this field different studies were carried out about the morphological-structural characterization of fillers (natural and synthetic clays, carbon nanotubes, POSS, ecc.), the incorporation of the fillers in different polymeric matrices using melt-compounding methods, the evaluation of final properties (mechanical, thermal and combustion behavior, degradation)
2. The optimization of the flame retardant testing of textiles. In this field it were prepared different surface treatment (impregnation, layer by layer deposition, plasma treatment, sol-gel approach) in order to create a coating of nanoparticles and/or functionalized molecular species to protect the textile and improve the thermal stability and fire retardant properties of the final materials.
3. The development of bio-based polymers and the use of the natural fillers derived also from waste or agriculture by-products. The new materials were prepared, also with the reactive processing approach, and characterized in terms of thermo-mechanical properties, stability on thermal and photooxidation properties, fire retardant. Finally also the preparation of sheets or films was developed and, in this case, the barrier properties to oxygen and water vapor were studied.

A. Frache is co-author of more than 90 original publications on international scientific journals and more than 100 contributes in national and international congresses. 5 books chapters and 2 patents.

Based on Scopus® at 04 december 2015 the bibliometric indices of Alberto Frache are:

Total citations: 2062

h-index: 23

h-index (Exlude self citations): 21

ORCID code is: orcid.org/0000-0002-2572-3235

Researcher ID of Thomson Reuters è: F-6968-2014

He is co-editor of:

Special Issue Macromolecular Symposia: Eurofillers 2009, Volume 301, Issue 1 (March 2011), Pages v–ix, 1–161. Issue edited by: Giovanni Camino, Alberto Frache, Daniela Tabuani

Special Issue Polymer Degradation and Stability: Fire Retardant Polymer Materials FRPM 11 Conference Alessandria, Italy 26-30 June 2011. Volume 97, Issue 12, Pages 2479-2626 (December 2012). Issue edited by: Giovanni Camino, Alberto Frache,

He was in the scientific committee of:

1° National Forum of Young Researchers on Polymeric materials and Biomaterials, Modena 18-20 September 2006.

2° National Forum of Young Researchers on Polymeric materials and Biomaterials, Genova 4-5 luglio 2008

He was in the Local Organizing Committee of:

Eurofillers 2009 International Conference (21-25 June), in Alessandria, Italy

13th European Meeting on Fire Retardant Polymers 2011 (26-30 June) , in Alessandria, Italy

A.Frache is in the Scientific Committee of the AIM (Associazione Italiana di Scienza e Tecnologia delle Macromolecole) from June 2013.

A.Frache is in the Board of Administration of the Proplast Consortium from 25.02.2015

A.Frache is reviewer for different scientific journals in the area of polymeric materials and nanocomposites: European Polymer Journal, Polymer Engineering & Science, Polymer Composites, Polymer Degradation and Stability, Polymer International, Journal of Reinforced Plastics and Composites, Clay and clay science.

A. Frache was involved as Responsible of the Polytechnic Unit in the following national and international research project:

1. "Sviluppo di nanomateriali organosilicei funzionali innovativi per materiali polimerici" Regional project CIPE D-20 2004.
2. "PLASTICOLLARS" Bando Regione Piemonte- Sistemi Avanzati di Produzione 2008-
3. LIVE "Veicoli leggeri eco-compatibili ottimizzati per il trasporto persone" Industria 2015, Bando del Progetto di Innovazione Industriale "Mobilità sostenibile
4. "FRONT- Flame Retardant on Textile" European Project, 7° FP. 2010-2012
5. "Nuovi Nanocompositi a Base di Grafene". Progetto PRIN 2008. (2009-2011)
6. "Progetto Fondazione CARIPLO 2015 "Gaining insights in the microbial degradation of polyethylene plastics to promote efficient bioremediation strategies-MICROPLAST" (2015-2018)

A. Frache was also involved in other regional, national and international project:

1. "Aspetti di base e funzionali di materiali polimerici ibridi inorganico-organici nanostrutturati" Progetto nazionale del MIUR: Fondo per gli Investimenti della Ricerca di Base (FIRB) con sette Università italiane, (2004-2007).
2. "Film di nanocompositi polimerici ad alta barriera per uso alimentare modificati con tecniche al plasma". Progetto regionale CIPE B-65 2004. (2006-2008).
3. "Environmentally friendly multifunctional fire retardant polymer hybrids and nanocomposites" (NANOFIRE) European project (2004-2007).
4. "Le nanotecnologie applicate ai rivestimenti innovativi (funzionali e decorativi) e ai materiali compositi polimerici e magnetici - NANOMAT" Progetto regionale DOCUP. (2006-2008)
5. "Innovative solutions for control system, electric plant, materials and technologies for a nonconventional remotely-piloted aircraft" Progetto regionale CIPE 2006. (2007-2009)
6. NAMATECH- Nano-materials and -technologies for intelligent monitoring of safety, quality and traceability in confectionery products. Progetto regionale Converging Technologies 2007. (2009-2011)
7. BIOPACK "Packaging sostenibile di nuova generazione: sviluppo di materiali a matrice polimerica da fonti rinnovabili non in concorrenza con la filiera alimentare, possibilmente disgiunti da quella energetica e preferibilmente biodegradabili e/o compostabili" Industria 2015, Bando Nuove Tecnologie per il Made in Italy, (2010-2013),
8. ECOFOOD "Additivi innovativi per ridurre l'impatto ambientale e/o favorire l'ecosostenibilità" Piattaforma Regione Piemonte "Cooperazione per lo sviluppo di nuovi prodotti, processi e tecnologie nel settore agro-alimentare" (2010-2014).
9. SAFEFOOD CONTROL "Sviluppo di tecnologie per la qualità e la sicurezza dei prodotti ortofrutticoli piemontesi, la sostenibilità ambientale ed energetica della filiera

ortofrutticola piemontese e la sua gestione e tracciabilità dei prodotti”, Piattaforma Regione Piemonte “Cooperazione per lo sviluppo di nuovi prodotti, processi e tecnologie nel settore agro-alimentare” (2010-2013).

10. EDEN “EcoDEsign Network – Network transfrontaliero per l’ingegneria di prodotti eco-compatibili”, Progetto Interreg-Alcotra, (2011-2014).
11. WINFIRE “Finestre elettrocromiche e antifiama per l’Efficienza Energetica degli edifici” Regione Piemonte, Progetto Polo di Innovazione, (2011-2014).

A.Frache from the Academic Year 2005 is involved in the lectures of different courses:

Polymeric Nanocomposites
Advanced Polymers, Degradation and Recycle of Polymers
Polymeric Materials Technology
Nanostructured materials
Materials Science and Technology
Chemistry, science and technology of polymers

He was tutor of 1 PhD student, and now he is tutor of 2 PhD students. He was supervisor of 14 Master thesis and 44 Bachelor thesis.

A.Frache was Invited lecturer to Beijing Institute of Technology (PR China) in November-December 2014 and November 2015

Torino, 01/09/2016

