Giuseppe Storti - Curriculum Vitae

A. Personal Information:

Date of Birth: August 29, 1955
Place of Birth: Lodi, Italy

B. Education:

Master Degree in Chemical Engineering, Politecnico di Milano, Italy, 1980

C. Academic Carrier:

1983-1987	Assistant Professor, Department of Applied Physical Chemistry, Politecnico di Milano, Milan (Italy)
1987-1994	Associate Professor (Chair of "Industrial Chemical Plants"), Department of Inorganic, Metalorganic and Analytical Chemistry, University of Padua, Padua (Italy)
1994-1999	Full Professor (Chair of "Applied Physical Chemistry"), Department of Chemical Engineering and Materials, University of Cagliari, Cagliari (Italy)
1996-1998	Visiting Professor (Prof. Morbidelli group), Laboratorium für Technische Chemie, ETH Zurich, Zurich (Switzerland)
1999-2011	Senior Scientist, Institute for Chemical and Bioengineering, ETH Zurich, Zurich (Switzerland)
2007-2010	Visiting Professor, Department of Chemistry, Materials and Chemical Engineering "Giulio Natta", Politecnico di Milano, Milan (Italy)
2011-	Honorary Professor, Institute for Chemical and Bioengineering, ETH Zurich, Zurich (Switzerland)
2017-	Associate Professor, Department of Chemistry, Materials and Chemical Engineering "Giulio Natta", Politecnico di Milano, Milan (Italy)

D. Teaching Activities:

1987-1994	Course "Unit Operations", Master of Industrial Chemistry, University of Padua, Padua (Italy)
1994-1999	Courses "Applied Physical Chemistry" and "Reaction Kinetics", Master of Chemical Engineering, University of Cagliari, Cagliari (Italy)
1999-	Course "Process Design and Development" (529-0643-00), Master of Chemical and Bioengineering, ETH Zurich, Zurich (Switzerland)
2007-2010	Course "Formulation Science", Master of Chemical Engineering, Politecnico di Milano, Milano (Italy)
2017-	Course "Principles of Advanced Separations", Master of Chemical Engineering, Politecnico di Milano, Milano (Italy)
2017-	Course "Polymer Reaction Engineering", Master of Chemical Engineering, Politecnico di Milano, Milano (Italy)

E. Research Interests

His main research topics are Adsorption Separation Processes and Polymer Reaction Engineering.

In the first case, all aspects of the adsorption based processes were explored, ranging from fundamental thermodynamics to the optimal design of the industrial separation process. Both liquid and gas phase processes have been studied, with reference to different separation strategies. After the study of conventional chromatographic-type processes, column configurations more suitable to large scale applications have been examined. In particular, Simulated Moving Bed units were deeply analyzed, with emphasis on different port switching strategies and on impact of column number and distribution on the separation performance. In all cases, experimental and modeling activities have been combined. In the latter case, remarkable insights into the process design were achieved using the analytical solution based on the so-called "equilibrium theory". The application of such theory to the analysis of multicomponent separations involving non-linear equilibria in the case of SMB processes at constant and variable pressure is one of his major contributions in this field.

In the second case, different polymerization processes have been examined once more combining experimental and modeling activities. In all cases, the final aim was the design of reaction paths and process conditions suitable to produce polymers with tailored microstructure (molecular weight, chain composition, chain architecture). After analyzing processes based on free-radical polymerization, step-growth, catalytic and ring-opening polymerization processes have been studied. Both homogeneous and heterogeneous systems were considered, with emphasis on the latter case (emulsion, dispersion and precipitation processes). The following achievements can be mentioned as the most relevant: the design of optimal feed strategies aimed to the control of composition in copolymerizations, the modeling of catalytic ring-opening processes in bulk, the understanding of the two-phase polymerization mechanism in polymerization reactions carried out in supercritical media and the modeling of nonlinear chain buildup in emulsion polymerizations.

He is coauthor of 11 patents and more than 240 research publications in these areas (h-index 37, list attached).

F. Research Funding (PI and co-PI)

1993-1997	EU-BRITE-EURAM Project "Intelligent Manufacturing of Polymers"
1997-2001	EU-BRITE-EURAM Project "The Reaction Engineering of Heterogeneously Catalyzed Polymerizations"
2001-2005	EU-RTD Project "Polyolefins: Improved Property Control and Reactor Operability"
2002-2005	EU-RTD Project "Novel Stabilizers for Sustainable Production of Fluoropolymers in supercritical CO2"
2009-2012	EU-Marie Curie ITN Project "Hybrid Models for Tailoring Nano-Architectures of Polymers"
2010-2014	EU-Marie Curie ITN Project "Multiscale Computational Modeling of Chemical and Biochemical Systems"
2007-2010	SNSF Project "Design and Development of the Mineral Carbonation Process for the Storage of Carbon Dioxide Captured from Point Sources"
2014-2017	SNSF Project "Particle Formation in Dispersion Polymerization"

2016-2019 SNSF Project “Experimental and modeling study of ethylene polymerization in gas phase reactors: impact of thermodynamics (Thermopoly)”

2003-2006 ETH Project “Dispersion Polymerization in Supercritical Carbon Dioxide”
2014-2015 ETH Seed Project “Porous nitrogen-doped carbon materials generated from fractal gels for CO2 capture”

1999-2003 KTI Project “Reactive Distillation of Formaldehyde”, Casale Chemicals, Lugano (Switzerland)
2006-2008 KTI Project “Sensitivity of the Acoustic Discharge Measurement on Silt Content”, Rittmeyer, Baar (Switzerland)
2007-2010 KTI Project “Industrial Production of Biocompatible Polymers”, Uhde-Inventa Fischer AG, Domat-Ems (Switzerland)
2012-2014 KTI Project “Analysis of forward and backward scattered acoustic signals to determine flow rate and particulate”, HSLU, Luzern (Switzerland)
2014-2017 KTI Project “Development of a new process for the production of polymers from renewable sources”, SULZER ChemTech Ltd., Winterthur (Switzerland)

G. Industrial Collaborations:

SISAS (Italy)	1980-1983
Enichem, ENI Group (Italy)	1982-1988
Caffaro (Italy)	1982-1986
Air Liquide (France)	1983-1984
Ausimont, Montedison Group (Italy)	1984-1999
Atochem (France)	1984-1986
Vinavil, Montedison Group (Italy)	1986-1997
European Vinyl Corporation(UK)	1994-1996
Lamberti (Italy)	1997-2015
Givaudan (Switzerland)	2001-2019
Induchem (Switzerland)	2005-2007
BASF (Germany)	2002-2016
SULZER ChemTech (Switzerland)	2010-2018

H. Patents:

1. S. Carra’, R. Paludetto, G. Storti, M. Morbidelli, B. Gurtner, R. Commandeur, *Process for separating isomeric dichlorotoluenes by adsorption*, **US4766262 (A)**, ATOCHEM (1988)
2. G. Niederjaufner, A. Pontoglio, G. Storti, M. Morbidelli, S. Carra’, *Process for separating mixed monochlorotoluene isomers, a plant for carrying out the process, and the isomers separated in this manner*, **US4795839 (A)**, CAFFARO SPA IND CHIM (1989)
3. S. Carra’, M. Morbidelli, R. Paludetto, G. Storti, B. Gurtner, R. Commandeur, *Process for the separation of isomeric dichlorotoluenes by adsorption on zeolites*, **MX164193 (B)**, ATOCHEM (1992)
4. A. Butte’, G. Storti, M. Morbidelli, *Process for producing homo- and co-polymers by RAFT miniemulsion polymerization*, **EP1205492 (A1)**, ETH Zurich (2002)

5. A. Butte', F. Quattrini, G. Storti, M. Morbidelli, *Process for producing homo- and co-polymers by RAFT emulsion polymerization*, **WO2005047354 (A1)**, ETH Zurich (2005)
6. I.L. Costa, P. Nising, F. Tancini, D. Pfister, G. Storti, M. Morbidelli, *A process to prepare a polyester polymer and a polyester polymer obtainable thereby*, **TW201446831 (A)**, SULZER CHEMTECH AG (2014)
7. G. Storti, M. Morbidelli, M. Soos, A. Lamprou, B. Bastian, *Method for the preparation of macroporous particles and macroporus particles obtained using such a method*, **WO2014079580 (A1)**, ETH Zurich (2014)
8. I.L. Costa, P. Nising, F. Tancini, D. Pfister, G. Storti, M. Morbidelli, *A process to prepare a cyclic oligomer and a cyclic oligomer obtainable thereby*, **TW201500399 (A)**, SULZER CHEMTECH AG (2015)
9. B.Bruchmann, D.Kehrloesser, M.Morbidelli, G.Storti, D.Pooja, *Nanoporous composite material with low density comprising hollow particles*, **WO2015074988 (A1)**, BASF (2015)
10. I.L. Costa, P.J. Fleckenstein, J.-G. Rosenboom, G. Storti, M. Morbidelli, *A process to prepare a polyester polymer and a polyester polymer obtainable thereby*, **CA3036621 (A1)**, SULZER (2018)
11. G. Storti, M. Morbidelli, A. Cingolani, M. Lorenz, *Porous Materials, Method for Producing Same and Uses Thereof*, **WO2019110318 (A1)**, ETH Zurich (2019)