

## MIRTA INÉS ARANGUREN, PhD

Full Professor

Head of Ecomaterials Group, Institute of Research in Materials Science and Technology (INTEMA)

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### PROFESSIONAL PREPARATION

Univ. Nac. de Mar del Plata, Argentina	Chemical Engineering	B.Sc.	1975-1980
University of Minnesota, USA	Chemical Engineering	Ph.D.	1985-1990

### APPOINTMENTS

- 2003-present Full Professor, Chemical Engineering Dep., *Univ. Nacional de Mar del Plata*, Arg.  
1994-2003 Associate Professor, Chemical Engineering Dep., *Univ. Nacional de Mar del Plata*, Arg.  
1990-1994 Adjoint Professor, Chemical Engineering Dep., *Univ. Nacional de Mar del Plata*, Arg.

- 2009-present Head of the ECOMATERIALS group in INTEMA  
1996-1998 and  
2004-2005 Vice Head of the Chemical Engineering Department, Univ. Nac. de Mar del Plata, Arg.  
1998-2000 Vice Head of INTEMA, Mar del Plata, Argentina .

### PUBLICATIONS (*selected publications related to the project*)

1. N. E. Marcovich, M. I. Aranguren, M. M. Reborado; "Modified woodflour as thermoset fillers. Part I. Effect of the chemical modification and percentage of filler on the mechanical properties", *Polymer*, **42**, 815-825 (2001).
2. N. E. Marcovich, M. M. Reborado, J. M. Kenny and M. I. Aranguren, "Rheology of Particle Suspensions in Viscoelastic Media. Wood Flour - Polypropylene Melt", *Rheologica Acta*, **43**, 293-303 (2004).
3. M. Mosiewicki, J. Borrajo, M.I. Aranguren, "Mechanical Properties Of Woodflour / Linseed Oil Resins Composites", *Polymer International*, **54**, 829-836 (2005).
4. N. E. Marcovich, M. L. Auad, N. E. Bellesi, S.R. Nutt, M.I. Aranguren, "Cellulose Micro/Nanocrystals Reinforced Polyurethane", *Journal of Materials Research*, **21** (4), 870-881, (2006 )
5. M. A. Mosiewicki, U. Casado, N. E. Marcovich, M. I. Aranguren, "Polyurethanes from tung oil: polymer characterization and composites", *Polymer Engineering & Science*, **49**, 685-692 (2009).

#### *Book chapters:*

6. M. I. Aranguren, "Polymer Composites", in *Encyclopedia of Surface and Colloid Science*, Ed.: Ponisseril Somasundaran, Arthur Hubbard. 2nd. Edition; Taylor & Francis/CRC Press: New York, Vol. 6, pp. 4796 - 4810 (2006).
7. M.I. Aranguren, M.M. Reborado, MM., "Plant Based Reinforcements for Thermosets Matrices, Processing and Properties", in "Engineering Biopolymers: Homopolymers, Blends and Composites", Ed: D. Bhattacharyya, S. Fakirov, Hanser Gardner Publications, Cincinnati, OH; pag. 193-222, (2007).
8. M. M. Reborado, M. I. Aranguren, N. E. Marcovich "Selected Topics in Wood Flour – Polypropylene Composites: Thermal, Mechanical And Time Dependent Response"; Chapter 6 in "Polyolefin Composites", Ed: D Nwabunma and T Kyu, John Wiley & Sons. pag. 150-177 (2008).

#### *Selected publications not directly related to the project*

9. M.I. Aranguren, "Crystallization of Polydimethylsiloxane: Effect of Silica Filler and Curing", *Polymer*, **39**, 4897- 4903 (1998).
10. M. L. Auad, P. M. Frontini, J. Borrajo, M. I. Aranguren, "Liquid Rubber Modified Vinyl Ester Resins: Fracture and Mechanical Behaviour", *Polymer*, **42**, 3723-3730 (2001).
11. M. L. Auad, M. Proia, J. Borrajo, M. I. Aranguren, "Rubber Modified Vinyl Ester Resins of Different Molecular Weights", *Journal of Materials Science*, **37**, 4117-4126 (2002).
12. M. Pereda, M.I. Aranguren, N. E. Marcovich, "Characterization of chitosan/caseinate films". *Journal of Applied Polymer Science*, **107** (2), 1080-1090 (2008).

13. N. L. García, L. Ribba, A. Dufresne, M.I. Aranguren, S. Goyanes, "Physico Mechanical Properties of Biodegradable Starch Nanocomposites", *Macromolecular Materials & Engineering*, **294** (3), 169-177, (2009).

## **SYNERGISTIC ACTIVITIES**

1. Reviewer for: *Bioresource Technology, Biomacromolecules, Cellulose, Bioresources, Carbohydrate Polymers, Journal of Agricultural and Food Chemistry, Journal of Rheology, Journal of Colloid and Interface Science, Journal of Applied Polymer Science, Macromolecular Materials and Engineering, Materials Chemistry and Physics, Composite Interfaces, Polymer, Polymer Engineering and Science, Journal of Materials Science, Materials Letters, Journal of Nanoscience and Nanotechnology, European Polymer Journal, Liquid Crystals and Molecular Crystals, Materials Chemistry and Physics, Polymer International, The Open Materials Science Journal, Composites A, Maderas, Ciencia y Tecnología, J Braz.Chem.Soc, Latin American Applied Research, Industrial and Engineering Chemistry, International Journal of Molecular Science, Acta Rheologica, Journal of Materials Science, book chapters for Marcel Dekker, ACS Symposium Series, for Kluwer, and a book proposal for John Wiley and Sons.*

### 2. Awards

**Iberoamerican Award to the Innovation and Entrepreneurship**, (group award, 2010) for the project "Starch-starch nanocomposites for packaging" (Euros 20,000 and certification).

**John Simon Memorial Guggenheim Fellowship** in 2008, for career scientific achievements and to carry on "Nanocellulose reinforced smart polyurethanes" (colab. with ML Auad).

**IFS/King Baudouin Award** for excellence in the scientific quality of the IFS (International Foundation for Sciences, Sweden) supported research project, 1996.

**International research grants**: from **TWAS** (Third World Academy of Sciences, Italy) in 1993 and 1998, and from **IFS** (International Foundation for Sciences, Sweden) research grants in 1992 and 1997.

3. Invited Lectures- *At Universities and institutions*: Universidad Nacional del Sur and Universidad Nacional de Luján (Argentina), Universidad Nacional, Heredia (Costa Rica), INSA Lyon (Francia), Universidad Tecnológica de Luleå, (Suecia), University of Southern California, (USA), Universidad de Minnesota (USA), Auburn University (USA).

*In scientific meetings* in Argentina and abroad: 13 as invited speaker, 3 plenary conferences.

## **COLLABORATORS & OTHER AFFILIATIONS**

Formal collaborations with: J. Kenny (Italy), R. Sibaja (Costa Rica), A. Curvelho (Brazil), E. Medeiros (Brazil), M.L. Auad (USA), L. Berglund (KTH, Sweden), I. Racz (Hungary), S. Eichhorn (UK), A.Dufresne (France), R. Anandjiwala (South Africa)

### **Professional Affiliations**

1992-cont. Member of The Third World Organization for Women in Science (TWOWS).

2009- cont. Member of the Society of Plastic Engineers, SPE.

2011-cont. Member of the American NanoSociety, ANS.

### **Thesis Advisor and Post-Graduate Scholar Sponsor**

#### As thesis Advisor

Eleven doctoral students (nine finished thesis), one master student (finished thesis) and ten undergraduate projects in the Materials Science Graduate School.

Sponsored postdoctoral scholars: Norma E. Marcovich, Mirna Mosiewiki, Walter Schroeder (all of them Prof. Univ. of Mar del Plata, and researchers at CONICET, Argentina).

#### Committee Member (thesis defenses):

10 Doctoral Thesis in Chemistry, Chemical Engineering, and Materials Science for four different Universities in Argentina,

1 Doctoral Thesis in the Escuela Universitaria de Ingeniería Técnica Industrial, Departamento de Ingeniería Química y del Medio Ambiente, San Sebastián, Spain,

1 Doctoral Thesis in the Norwegian University of Science and Technology, Trondheim, Norway.