

Part A. PERSONAL INFORMATION

CV date 17/11/2020

First and Family name	Elena de la Fuente González		
Social Security, Passport, ID number	46843382H	Age	45
Researcher codes	Open Researcher and Contributor ID (ORCID**)	0000-0003-0421-4607	
	SCOPUS Author ID (*)	6603843279	
	WoS Researcher ID (*)	F-3774-2016	

(*) *Optional*

(**) *Mandatory*

A.1. Current position

Name of University/Institution	University Complutense of Madrid		
Department	Chemical and Materials Engineering		
Address and Country	Avda. Complutense s/n, Faculty of Chemistry, 28040 Madrid, Spain		
Phone number	+34913944245	E-mail	helenafg@ucm.es
Current position	Professor	From	21/10/2010
Key words	Nanofibrillated celluloses; flocculation, fiber cement, papermaking		

A.2. Education

PhD, Licensed, Graduate	University	Year
Chemical engineer	Universidad Complutense de Madrid	1999
PhD in Chemical Engineering	Universidad Complutense de Madrid	2004

A.3. General indicators of quality of scientific production (see instructions)

Number of six-year term of research: 3. The last one is: 2012-2017.

Codirecting 1 PhD thesis

53 indexed research papers, JCR. 37 from 2008

Global h (WoS)= 22, Total cites from 2008: 1074, Mean cites per year (last 5 years) = 96.

Scopus index h from 2008 = 18,

Part B. CV SUMMARY (max. 3500 characters, including spaces)

She has worked as an Assistant Professor (2002-2004), as a Doctor Assistant Professor (2004-2008), as a Contracted Doctor Professor (2008-2010) and as a Professor from 2010 in the Department of Chemical and Materials Engineering from the UCM.

The research activity focuses on the following research lines:

- Flocculation processes in the paper industry, water purification and asbestos-free fiber cement production,
- Cellulose nanofibers: Production, behavior and applications
- Use of lignocellulosic wastes.

The last 8 years she has focused her research on the cellulosic nanofibers production, characterization and application, especially in the papermaking and cement industries. In fact, the most contributed topic from 2015 (Scopus) has been "Nanocelluloses, oxidized cellulose and nanowiskers". In fact the 75% of her last 20 published paper from 2015 are on this topic, including two reviews on this subject and she has contributed to different International conferences with communications on nanocelluloses, as for example IIBBC 2018, AIChE, 2017.

This work has been carried out by means of the participation, at the projects researcher, with UCM affiliation, in the projects CTQ2012-36868-C02-01 and CTQ2017-85654-C2-2-R, which have generated the knowledge on nanocelluloses that has allowed presenting this proposal. From 2008, she has participated in 8 projects of competitive calls (3 from the CM, 3 national and 2 European), and several contracts for technological transference with companies, in addition to 9 special actions in national calls.



Part C. RELEVANT MERITS (sorted by typology)

C.1. Publications (see instructions)

- Balea, A., Monte, M. C., Merayo, N., Campano, C., Negro, C., & Blanco, A. (2020). Industrial Application of nanocelluloses in papermaking: a review of challenges, technical solutions, and market perspectives. *Molecules*, 25(3): 526.
- Negro, C., Martín, A. B., Sanchez-Salvador, J. L., Campano, C., Fuente, E., Monte, M. C., & Blanco, A. (2020). Nanocellulose and its potential use for sustainable industrial applications. *Latin American Applied Research-An international journal*, 50(2): 59-64.
- Balea, A., Monte, M. C., Fuente, E., Sanchez-Salvador, J. L., Blanco, A., & Negro, C. (2019). Cellulose nanofibers and chitosan to remove flexographic inks from wastewaters. *Environmental Science: Water Research & Technology*, 5(9): 1558-1567.
- Balea, A., Blanco, A., & Negro, C. (2019). Nanocelluloses: natural-based materials for fiber-reinforced cement composites. A critical review. *Polymers*, 11(3): 518.
- Balea, N. Merayo, E. de la Fuente, C. Negro, M. Delgado-Aguilar, P. Mutjé, A. Blanco. (2018). Cellulose nanofibers from residues to improve linting and mechanical properties of recycled paper. *Cellulose*. 25(1): 1339–1351
- Balea, N. Merayo, E. de la Fuente, C. Negro, A. Blanco. (2017). Assessing the influence of refining, bleaching and TEMPO-mediated oxidation on the production of more sustainable cellulose nanofibers and their application as paper additives. *Industrial Crops and Products*, 97: 374-387
- N. Merayo, A. Balea, E. de la Fuente, A. Blanco, C. Negro. (2017). Interactions between cellulose nanofibers and retention systems in flocculation of recycled fibers. *Cellulose*, 24(2): 677-692.
- N. Merayo; A. Balea; E. Fuente; A. Blanco; C. Negro. (2017). Synergies between cellulose nanofibers and retention systems to improve recycled paper properties and its drainage process. *Cellulose*. 24 (7), 2987-3000.
- P. Raj; A. Blanco; E. Fuente; W. Batchelor; C. Negro.; G. Garnier. (2017). Microfibrillated cellulose as a model for soft colloid flocculation with polyelectrolytes. *Colloids and Surfaces A: Physicochemical and Engineering Aspects*. 516, 525 – 535.
- Balea, M.C. Monte, E. de la Fuente, C. Negro, A. Blanco. (2017). Application of cellulose nanofibers to remove water-based flexographic inks from wastewaters. *Environmental Science and Pollution Research*, 24(5): 5049-5059.

C.2. Research projects

- CTQ2017-85654-C2-2-R. “Producción sostenible de nanocelulosas para su aplicación en diferentes sectores y procesos industriales”. Ministerio de Ciencia, Innovación y Universidades. IP: Carlos Negro Álvarez (UCM). 01/01/2018 a 31/12/2020. Investigador.
- P2013/MAE2907. “Producción sostenible y simbiosis industrial en la Comunidad de Madrid” RETO-PROSOST-CM. Comunidad de Madrid. IP: Ángeles Blanco Suárez (UCM). 1/10/ 2014 a 30/09/2018. 111849 €. Investigador.
- CTQ2012-36868-C02-01, Estudio de la utilización de celulosa microfibrilada en la fabricación de papel reciclado: Efecto sobre la retención y el drenaje de las pastas, Ministerio de Economía y Competitividad, convocatoria 2012, (1/01/2013-31/12/2015), IP: Carlos Negro, 162630€.



- S-2009-AMB1480, Producción limpia de papel reciclado en la Comunidad de Madrid PROLIPAPEL II, Comunidad de Madrid, (1/1/2010-31/7/2013). Participantes: UCM, CIB, INIA, CIEMAT, UC3M. IP: Ángeles Blanco, 333952 €.
- CIT-310000-2008-15, OXIPAPEL, Aplicación de procesos de oxidación avanzada en combinación con biorreactores de membrana a los efluentes de las industrias papeleras, Ministerio de Ciencia e Innovación, (1/1/2008-31/12/2010),. IP: Ángeles Blanco 201304 €.
- Ref. 315633. Innovative Paper Packaging Products for European SMEs Based on Functional Modification of Recovered Fibres (Fibre+). Unión Europea. IP: Ángeles Blanco Suárez (UCM). 1/12/2012 to 30/11/2015. 131296 €. Researcher.
- EU-FP7-ENV-211534. Fit-for-use sustainable water use in chemical, paper, textile and food industry (AquaFit4use). (VII Programa Marco). Ángeles Blanco Suárez (UCM). 1/6/2008 to 1/6/2012. 525.000 €. Researcher.
- S-0505/AMB/0100. Producción limpia de papel reciclado: hacia la sostenibilidad en la producción de papel en la comunidad de Madrid PROLIPAPEL. Comunidad de Madrid, (1/1/2006-31/12/2009). Participantes: UCM, CIB, INIA, CIEMAT. IP: Ángeles Blanco, UCM, 223573 €.

C.3. Contracts, technological or transfer merits

- Mejora de las propiedades del cemento mediante la adición de derivados celulósicos, A3D 2019-2020. IP: Ángeles Blanco.
- Reduction of fresh water use by reuse of the effluent, Holmen Paper Madrid, (1/1/2008-31/12/2011), IP: Ángeles Blanco, 270000€.
- Investigación en tecnologías avanzadas para la valoración integral de algas. (CENIT-VIDA), Exeleria (21/1/2011 30/6/2013), IP: Carlos Negro, 200000€.
- Interacciones y efectos de la sepiolita en sistemas de fibrocemento, TOLSA, S.A., (1/3/2007-1/3/2009), IP: Carlos Negro, 58000€

C.4. I+D Organizing experience

- Member of the organizing committee of IIBCC 11th Internacional Inorganic Bonded Fiber Composites Conference. Madrid 4-7/11/2008.
- Member of the organizing committee of the Special symposium “Modelling and Experimentation of Fibre Suspensions in Process Engineering” in the 10th World Congress of Chemical engineering. Barcelona 1-5/10/ 2017.

C.5. Congresses

- A. Balea, M.C. Monte, E. Fuente, N. Merayo, J.L. Sánchez-Salvador, C. Campano, A. Blanco, C. Negro. “Nanocellulose: nano in size and giant in the potential to open up endless novel environment-friendly applications”. Oral communication International Symposium on Setting their Table: Women and the Periodic Table of Elements. Murcia (Spain), 2019
- C. Negro, M. C. Monte, E. Fuente, A. Balea, N. Merayo, C. Campano, A. Blanco. “The role of nanocellulose in sustainable future materials” Oral communication, IIBCC 2018. International Inorganic-Bonded Fiber Composites Conference, Ciudad del Cabo (Sudáfrica) 2018



- N. Merayo, A. Balea, C. Campano, M.C. Monte, E. Fuente, C. Negro, A. Blanco “Extending paper sustainability: chitosan and nanocellulose additives”. Poster, 10th World Congress of Chemical Engineering, Barcelona (Spain), 2017
- A. Balea, N. Merayo, E. Fuente, A. Blanco, C. Negro. “Isolation and characterization of cellulose nanofibers from corn and rape stalk pulp using high pressure homogenization combined with TEMPO-mediated oxidation, bleaching and refining pulp pre-treatments” Poster COST Action FP1205, Innovative applications of regenerated wood cellulose fibres: "Characterization of Nanocellulose", 2017
- A. Balea, N. Merayo, E. Fuente, A. Blanco, C. Negro “Cellulose Nanofibers from Recycled Pulp: Production, Characterization and Application to Reinforce Recycled Paper”, Oral communication, 16AIChE Annual Meeting, San Francisco (Estados Unidos) 2016
- N. Merayo, A. Balea, E. Fuente, A. Blanco, C. Negro “Relevance of retention systems when using cellulose nanofibers as strength additives in papermaking” Oral communication, COST Action FP1205: Cellulosic Materials – Processing, Properties and Promising Applications, Budapest (Hungria), 2016
- A. Balea, N. Merayo, E. Fuente, A. Blanco, C. Negro. “Cellulose nanofibers from eucalyptus, corn and rape stalks to improve recycled paper. Effect on the drainage process”. Poster. 6th EuCheMS Chemistry Congress, Sevilla (Spain), 2016
- A. Balea, N. Merayo, M. Seara, E. Fuente, C. Negro “Effect of NFC from organosolv pulp on retention and drainage on the papermaking process”. Oral communication in 1st International Workshop on Biorefinery of Lignocellulosic Materials (IWBLCM),: Cordoba (Spain), 2015.
- N. Merayo; E. Fuente; P. Mutjé; C. Negro. “Uso de NFC a partir de pasta de eucalipto y residuos de maíz para mejorar la resistencia del papel reciclado”. Poster. XXVII Congreso Interamericano y Colombiano de Ingeniería Química, Cartagena de Indias, Colombia, 2014.
- N. Merayo; E. Fuente; Á. Blanco; C. Negro. “Green nano-materials: from the plant to the nanofibril”. Poster. 5th EuCheMS, European Chemistry Congress, Estambul, Turquía, 2014.
- N. Merayo; E. Fuente; P. Mutjé; C. Negro. “Improving recycling paper using NFC from BKP and agricultural waste: Influence of recovered paper type”. Poster. ANQUE ICCE BIOTEC, Madrid, España, 2014. ISBN: 978-84-697-0726-5.

C.6. Prizes

- Extraordinary doctorate award

C.7. Merits related to the teaching activity

She has recognized 3 five-year term of teaching.

Since the 2012-2013 academic year, she has participated in all the calls of the Program for the Evaluation of the Quality of the Teaching Activities of the Teaching Staff of the UCM and in 7 different innovative projects to improve teaching quality.