

CURRICULUM VITAE ABREVIADO (CVA)

Part A. PERSONAL INFORMATION

First name	ENCARNACIÓN MARÍA		
Family name	RUIZ AGUDO		
Gender	FEMALE	Birth date	22/06/1979
Social Security, Passport, ID number	DNI 74667058L		
e-mail	encaruiz@ugr.es	URL Web	
Open Researcher and Contributor ID (ORCID)	0000-0003-1292-4000		

A.1. Current position

Position	Full professor		
Initial date	13/07/2023		
Institution	University of Granada		
Department/Center	Mineralogy and Petrology, Faculty of Sciences		
Country	Spain	Telephone number	+34958240473
Key words	Crystal growth, Low-temperature geochemistry		

A.2. Previous positions

Period	Position/Institution/Country/Interruption cause
2004-2007	Research fellow, funded by the European Project SALTCONTROL (FP6). Dpt. Mineralogy and Petrology, University of Granada (Spain).
2007 – 2008	Research fellow, funded by the Plan Propio de Investigación (University of Granada). Dpt. Mineralogy and Petrology, University of Granada (Spain).
2009-2011	Marie Curie Experienced Researcher, Universität Münster. Institut für Mineralogie, Universidad de Münster (Alemania)
2011	Research fellow, funded by the Plan Propio de Investigación (University of Granada). Reintegration grant. Dpt. Mineralogy and Petrology, University of Granada (Spain).
2012-2016	Ramón y Cajal Resarch Fellow (tenure track). Dpt. Mineralogy and Petrology, University of Granada (Spain).
2016-2023	Assistant Professor. Dpt. Mineralogy and Petrology, University of Granada (Spain).

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
PhD	University of Granada (Spain).	2007
Advanced Studies Diploma	University of Granada (Spain).	2006
Technical Industrial Engineer	University of Jaen (Spain).	2006
Chemical Engineer	University of Granada (Spain).	2003

Part B. CV SUMMARY

Encarnación Ruiz Agudo (since July 2023, Full Professor, and formerly Assistant Professor and Ramón y Cajal Researcher at the Department of Mineralogy and Petrology, University of Granada) is a Chemical Engineer from the University of Granada (July 2003) and Technical Industrial Engineer by the University of Jaén (September 2006). She began her research activity with a research initiation scholarship from the Department of Chemical Engineering of the University of Granada, funded by the company PULEVA Biotech S.A. (February 2003-



March 2004). From 01.04.2004 to 14.01.2009 she worked in the Department of Mineralogy and Petrology of the University of Granada, where she carried out her pre-doctoral research supervised by Prof. Carlos Manuel Rodríguez Navarro, funded by the European Union through the SALTCONTROL project (FP6) and “Plan Propio de Investigación” of the University of Granada. She received her doctorate in December 2007 within the Earth Sciences Doctorate Program. She carried out pre- and post-doctoral stays (29 months) at internationally renowned centers, including The Getty Conservation Institute (Los Angeles, USA) and the Institute für Mineralogie of the University of Münster (Germany). In this last center she worked for 24 months (2009-2011) funded by a Marie Curie postdoctoral contract in the group of Professor Andrew Putnis. During her research career she has participated in 16 research projects, funded by the International Campus of Excellence PATRIMONIUM-10, the Junta de Andalucía, the National R & D Plan and the European Union, being a Principal Investigator (PI) in eight of them. Her research has been conducted in collaboration with international (researchers from Germany, England, France, Australia and China) and multidisciplinary (geologists, chemists, microbiologists, physicists and restorers) teams. The results of her research activity have been published in a total of 98 publications (index h: 42, WOS) in scientific journals of recognized international prestige collected in the JCR as well as in more than 90 papers presented at international and national conferences. Likewise, the results of her research have given rise to two patents, currently exploited by the company TRENZAMETAL S.L. Her research career has been awarded with several national and international awards, including the Young Researcher Award of the Spanish Society of Mineralogy (2008), Young Scientist Outstanding Poster Presentation Award (YSOPP) of the European Geoscience Union (2009), Arne Richter Award for Outstanding Young Scientists of the European Geosciences Union (2012), European Mineralogical Union Research Excellence Medal (2014), and the Young Researchers Award of the Social Council of the UGR (2015). Her research focuses on getting a better understanding of the processes of dissolution, growth and mineral replacement, as well as the effect of organic compounds in them, using in-situ techniques such as atomic force microscopy (AFM), with diverse applications including the protection of ornamental materials used in the built heritage, cement industry, biomineralization processes and CO₂ capture through carbonate mineralization (as the result of the research in this last line I hold 2 patents).

Part C. RELEVANT MERITS

C.1. Publications (last 10 years)

1. Rodríguez Navarro, C; Monasterio Guillot, L; Burgos Ruiz, M; **Ruiz Agudo, E** and Elert, K (2023) Unveiling the secret of ancient Maya masons: biomimetic lime plasters with plant extracts *Science Advances*, 9, eadf6138, 1-15.
2. Burgos-Ruiz, M., Pelayo-Punzano, G., **Ruiz-Agudo, E.**, Elert, K., Rodríguez-Navarro, C. Synthesis of high surface area CaSO₄·0.5H₂O nanorods using calcium ethoxide as precursor (2021) *Chemical Communications*, 57 (59), pp. 7304-7307. DOI: 10.1039/d1cc02014e
3. **Ruiz-Agudo, E.(AC)**, Ruiz-Agudo, C., Di Lorenzo, F., Alvarez-Lloret, P., Ibañez-Velasco, A., Rodríguez-Navarro, C. Citrate Stabilizes Hydroxylapatite Precursors: Implications for Bone Mineralization (2021) *ACS Biomaterials Science and Engineering*, 7 (6), pp. 2346-2357. DOI: 10.1021/acsbmaterials.1c00196
4. Monasterio-Guillot, L., Fernández-Martínez, A., **Ruiz-Agudo, E. (AC)**, Rodríguez-Navarro, C. Carbonation of calcium-magnesium pyroxenes: Physical-chemical controls and effects of reaction-driven fracturing (2021) *Geochimica et Cosmochimica Acta*, 304, pp. 258-280. DOI: 10.1016/j.gca.2021.02.016
5. Burgos-Cara, A., Rodríguez-Navarro, C., Ortega-Huertas, M., **Ruiz-Agudo, E.** Bioinspired Alkoxysilane Conservation Treatments for Building Materials Based on Amorphous Calcium Carbonate and Oxalate Nanoparticles (2019) *ACS Applied Nano Materials*, 2 (8), pp. 4954-4967. DOI: 10.1021/acsanm.9b00905
6. **Ruiz Agudo, E (AC)**; Burgos Cara, A; Ruiz Agudo, C; Ibañez Velasco, A; Colfen, H and Rodríguez Navarro, C. A non-classical view on calcium oxalate precipitation and the role of citrate. *Nature Communications*, 8, 768, 1-10 (2017) DOI: 10.1038/s41467-017-00756-5
7. Jroundi, F; Schiro, M; **Ruiz Agudo, E** ; Elert, K; Martín Sánchez, I; González Muñoz, MT and Rodríguez Navarro, C Protection and consolidation of stone heritage by self-inoculation with indigenous carbonatogenic bacterial communities *Nature Communications*, 8, 279, 1-13 (2017) DOI: 10.1038/s41467-017-00372-3

8. **Ruiz Agudo, E (AC)**; King, HE; Patiño López, LD; Putnis, CV; Geisler, T; Rodriguez Navarro, C; Putnis, A. Control of silicate weathering by interface-coupled dissolution-precipitation processes at the mineral-solution interface. *Geology*, 44, 567-570 (2016) DOI: 10.1130/G37856
9. **Ruiz-Agudo, E (AC)**, Putnis, C.V., Rodriguez-Navarro, C., Putnis, A. Mechanism of leached layer formation during chemical weathering of silicate minerals (2012) *Geology*, 40 (10), pp. 947-950. DOI: 10.1130/G33339.1
10. **Ruiz-Agudo, E (AC)**., Putnis, C.V., Kowacz, M., Ortega-Huertas, M., Putnis, A. Boron incorporation into calcite during growth: Implications for the use of boron in carbonates as a pH proxy (2012) *Earth and Planetary Science Letters*, 345-348, pp. 9-17. DOI: 10.1016/j.epsl.2012.06.032

C.2. Research projects (last 10 years).

1. TITLE: "Enhanced X(cross)-disciplinary Community-driven Imaging Technologies for Earth and Environmental material research (EXCITE²)"
FUNDING AGENCY: Horizon Europe grant agreement No 101131765.
PERIOD: 2024-2028
PRINCIPAL INVESTIGATOR: **Encarnación Ruiz Agudo (UGR)**, Olliver Plümper (University of Utrecht)
2. TITLE: "Sustainable building lime applications via circular economy and biomimetic approaches (SUBLIME)"
FUNDING AGENCY: Comisión Europea H2020-MSCA-ITN-2020
PERIOD: 2021-2025
PRINCIPAL INVESTIGATOR: Carlos Rodriguez Navarro (UGR), Paulo Lourenço (University of Minho)
3. TITLE: Fundamental studies of mineral carbonation with application to CO₂ sequestration (FUNMIN)
FUNDING AGENCY: ERA NET Cofund-European Research Area Network: Accelerating CCS Technologies (H2020)
PERIOD: 01/10/2019 - 30/09/2022
PRINCIPAL INVESTIGATOR: **Encarnación Ruiz Agudo (UGR)**, Devis Di Tommaso, Greg Chass (Queen Mary University of London, UK)
4. TITLE: Formación y transformación de fases en el sistema CaSO₄-H₂O: implicaciones en la alteración y conservación de yeserías (GYPSUMCON)
FUNDING AGENCY: Ministerio de Ciencia, Innovación y Universidades (2019-2021)
PERIOD: 01/01/2019 - 31/12/2021
PRINCIPAL INVESTIGATOR: **Encarnación Ruiz Agudo**
5. TITLE: Estrategias biomiméticas para la captura acelerada de CO₂ mediante alteración y carbonatación de silicatos
FUNDING AGENCY: MINISTERIO DE ECONOMÍA Y COMPETITIVIDAD (proyecto EXPLORA)
PERIOD: 01/03/2017 - 31/10/2018
PRINCIPAL INVESTIGATOR: **Encarnación Ruiz Agudo**
4. TITLE: Alteración y carbonatación de silicatos de calcio y magnesio: implicaciones en la captura, almacenamiento y utilización de CO₂
FUNDING AGENCY: MINISTERIO DE ECONOMÍA Y COMPETITIVIDAD (proyecto RETOS)
PERIOD: 01/01/2016 - 28/02/2018
PRINCIPAL INVESTIGATOR: Carlos Rodríguez Navarro/**Encarnación Ruiz Agudo**
5. TITLE: STONEPROTECT: Protección y consolidación de rocas ornamentales mediante procesos de mineralización in situ
FUNDING AGENCY: JUNTA DE ANDALUCÍA (proyectos de Excelencia)
PERIOD: 27/02/2013 - 30/03/2018
PRINCIPAL INVESTIGATOR: **Encarnación Ruiz Agudo**
6. TITLE: Mecanismos de formación de capas de pasivación de superficies minerales y su aplicación en la conservación de materiales pétreos.
FUNDING AGENCY: MINISTERIO DE ECONOMÍA Y COMPETITIVIDAD
PERIOD: 01/01/2013 - 31/12/2015
PRINCIPAL INVESTIGATOR: **Encarnación Ruiz Agudo**

C.4. Contracts, technological or transfer merits.

C.4.1. Contracts

1. TITLE: Development of new hydrated limes for FGT applications - Sorbacal® Next Generation.

COMPANY/FUNDING INSTITUTION: S.A. Lhoist Research & Development (Belgium)

PERIOD: 01/09/2017 - 31/04/2018

PRINCIPAL INVESTIGATOR: CARLOS RODRÍGUEZ NAVARRO

2. TITLE: Estudio, desarrollo y aplicación de cales hidratadas optimizadas con aditivos orgánicos funcionales para distintas aplicaciones en obra pública y construcción.

COMPANY/FUNDING INSTITUTION: TRENZAMETAL S.L.

PERIOD: 01/04/2010 - 31/03/2012

PRINCIPAL INVESTIGATOR: CARLOS RODRÍGUEZ NAVARRO

C.4.2. Patents

1. TITLE: CO₂-capturing binder, production method thereof based on the selection, purification and optimisation of carbide lime, and agglomerates having an environmental activity.

INVENTORS: Bermejo, Miguel Angel; Rodriguez-Navarro, Carlos, Ruiz-Agudo, Encarnación María & Elert, Kerstin. APPLICANT: Geosilex Trenza Metal, S.L. DATE: 2015 CODE: US9034100B2. CIP CODE: C04B2/02; B01D53/62; C01F1/00; C01F11/02; C01F11/16; C01F11/18; C04B2/00; C04B28/10; C09D1/10; C04B11/00; C04B11/72

2. TITLE: Air setting method for obtaining prefabricated parts with binding matrices, matrices and prefabricated parts thus obtained and use thereof. INVENTORS: Bermejo, M.A., Rodriguez-Navarro, C., Ruiz-Agudo, E. & Elert, K. APPLICATION No. PCT 25082BIS (WO2011107629) COUNTRY: Spain PRIORITY DATE: 29/11/2011 OWNER: TRENZAMETAL S.L. OTHER COUNTRIES: All except from EEUU

C.5. Awards

1. Young Researcher Award of the Spanish Society of Mineralogy (2008)

2. Young Scientist Outstanding Poster Presentation Award (YSOPP) of the European Geoscience Union (2009)

3. Arne Richter Award for Outstanding Young Scientists of the European Geoscience Union (2012)

4. European Mineralogical Union Research Excellence Medal (2014)

5. Young Researcher Award of the Social Council of the UGR (2015)

C.6. R & D management

1. TITLE: Grant evaluation for the ANEP

DATE: from 2014

2. TITLE: Grant evaluation (RETOS and EXCELENCIA programs, Ministerio de Economía y Competitividad, Spain)

DATE: from 2014

3. TITLE: Ramón y Cajal fellowship evaluation (Ministerio de Economía y Competitividad, Spain)

DATE: from 2014

4. TITLE: Grant evaluation for Research Foundation Flanders

DATE: from 2023

5. TITLE: Grant evaluation for Austrian Science Fund (FWF)

DATE: from 2024

C.7. Committee membership

1. Committee: Junta Directiva de la Sociedad Española de Mineralogía. Role: Vicesecretary (01/01/2013 – 31/12/ 2016) and Secretary (01/01/2017- 31/12/ 2020)

2. Committee: Editorial board of the international journal The European Journal of Mineralogy (EJM). Role: Associated editor (01/01/2018-)

3. Committee: Council of the European Association of Geochemistry. Role: member (01/01/2018- 31/12/ 2020)

2. Committee: Editorial board of the international journal Geochimica et Cosmochimica Acta. Role: Associated editor (01/01/2021-)