

CURRICULUM VITAE ABREVIADO (CVA)

IMPORTANT – The Curriculum Vitae cannot exceed 4 pages. Instructions to fill this document are available in the website.

Part A. PERSONAL INFORMATION

First name	Enrique		
Family name	Nebot Sanz		
Gender (*)	Male	Birth date (dd/mm/yyyy)	
Social Security, Passport, ID number	DNI:		
e-mail	enrique.nebot@uca.es	WEB	
Open Researcher and Contributor ID (ORCID) (*)		0000-0001-8845-6800	

(*) Mandatory

A.1. Current position

Position	Full Professor		
Initial date	2008		
Institution	Universidad de Cádiz		
Department/Center	Tecnologías del Medio Ambiente		
Country	Spain	Teleph. number	956016198
Key words	supercritical water oxidation; UV disinfection; fouling; ballast water		

A.2. Previous positions (research activity interruptions, indicate total months)

Period	Position/Institution/Country/Interruption cause
1994-2008	Asociated Professor. Universidad de Cádiz (Spain)

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Graduated in Chemistry	University of Cádiz (Spain)	1986
pHD in Chemistry	University of Cádiz (Spain)	1992

Part B. CV SUMMARY (max. 5000 characters, including spaces)

Full Professor in the area of Environmental Technologies since 2008. Director of the Master in Integrated Water Management at the University of Cádiz since 2007.

The lines of research in which I have worked can be grouped into two large fields that are titled:

ENVIRONMENTAL TECHNOLOGIES: Anaerobic digestion; Hydrothermal oxidation; Disinfection of urban wastewater using ultraviolet light. Disinfection of marine waters: cooling waters and ballast waters.

WATER QUALITY MANAGEMENT: Estuary and coastal water quality; Dynamics of pollutants in the marine environment.

Regarding the treatment of marine waters, I began research in 1999, through various research projects funded with public and private aids. Initially, work was carried out on the treatment of cooling water from thermal power plants, to mitigate the fouling problem that occurs in the condenser tubes of coastal thermal power plants. For this, a pilot plant was built that perfectly simulates the operation of a thermal power plant condenser. Various chemical treatments have been tested, optimized and modeled by using substances such as sodium hypochlorite, peracetic acid, aliphatic amines and copper ions. However, these treatments, although they

are effective, have the difficulty of consuming and subsequently spilling large amounts of toxic substances.

Parallel to these works, investigations have been carried out on the use of UV radiation for the disinfection of urban wastewater, having achieved a significant knowledge of this technology through the management of pilot and industrial plants. Models have been developed that calculate the applied radiation dose and its effects on the microorganisms in the treated water depending on the operating conditions and the water characteristics. Also in Advanced Oxidation Processes I have experience: Ozonation and Catalytic Photooxidation.

In 2014, with the concession of a National Plan Project, began the research line of water management in cruise ships, which has made it possible to deepen the desalination, purification systems of the waters generated in this type of ships. In the next four years we have focused on ballast water treatment, studying different technologies applicable to the disinfection of marine waters. Actually I have studying the optimization of marine scrubber for treatment of exhaust gases in vessels.

The fruits of this research work are collected in the following sections.

PUBLICATIONS: More than 80 Articles in international journals, including Water Research (7), Chemical Eng. Journal (5), Science of the Total Environment (4) and J. of Hazardous Materials (4). More than 2300 cites, h index =29 (Scopus).

PARTICIPATION IN SCIENTIFIC CONFERENCES: Member of the organizing committee of several conferences related to environmental issues. Presentation of more than 100 oral and poster presentations at various national and international conferences. Organizer of the RETOLASTRE Conferences 2017 (Cádiz), 2018 (Bilbao) and 2019 (Algeciras), addressed to maritime sector for analyzing the main challenges of the IMO convention on Ballast Water Management.

RESEARCH PROJECTS FUNDED: participation as a researcher in more than 50 research projects funded by public and private entities. IP researcher in 7 projects of the National Plan. Researcher of several European projects, among which are: Cross-Border Campus for Sustainable Management of Water Resources (Campus EAgUa). Network of Cooperation in R + D + i Oriented to the Design of a Sustainable and Cross-Border System of Maritime-Fluvial Transport in the Gulf of Cádiz. SPOMAR. Responsible for the UCA in CONSOLIDER NOVEDAR project (Integral conception of the STP of the XXI century. Development of technologies for the treatment and resources recovery from wastewater.

LEADERSHIP and TRAINING CAPACITY: I have supervised 15 doctoral theses, I have led research projects and contracts financed with more than 2 million euros.

Part C. RELEVANT MERITS *(sorted by typology)*

C.1. Publications

LEONARDO ROMERO-MARTÍNEZ; JAVIER MORENO-ANDRÉS; ASUNCIÓN ACEVEDO-MERINO; **ENRIQUE NEBOT** (2022). Developing a geometrical model for determining the mean intensity of ultraviolet LED reactors and validation with biodosimetry and actinometry tests. Journal of Water Process Engineering 49 (2022) 103137

IGNACIO RIVAS-ZABALLOS; LEONARDO ROMERO-MARTÍNEZ; M. EUGENIA IBÁÑEZ-LÓPEZ; ASUNCIÓN ACEVEDO-MERINO; **ENRIQUE NEBOT** (2022). Semicontinuous and batch ozonation combined with peroxymonosulfate for microalgae ballast water inactivation. Science of The Total Environment Volume 847, 157559.

IGNACIO RIVAS-ZABALLOS; LEONARDO ROMERO-MARTÍNEZ; IGNACIO MORENO-GARRIDO, ASUNCIÓN ACEVEDO-MERINO, **ENRIQUE NEBOT** (2021). Evaluation of three photosynthetic species smaller than ten microns as possible standard test organisms of ultraviolet-based ballast water treatment. Marine Pollution Bulletin (OPEN ACCESS), Volume 170, September 2021, 112643

L. ROMERO-MARTÍNEZ; I. RIVAS-ZABALLOS; J. MORENO-ANDRÉS, I. MORENO-GARRIDO, A. ACEVEDO-MERINO, **ENRIQUE NEBOT** (2021). Improving the microalgae inactivating efficacy of ultraviolet ballast water treatment in combination with hydrogen peroxide or peroxydisulfate salt. **Marine Pollution Bulletin**, 162, January 2021, 111886

ISAÍAS VICENTE, JUAN A, LÓPEZ-RAMÍREZ, ACEVEDO-MERINO, ENRIQUE NEBOT (2020). AIS-based methodology for environmental characterization of world cruise fleet traffic. **International Journal of Sustainable Transportation**, Volume 14, pag 465-474

JUAN JOSÉ RUEDA-MÁRQUEZ; T. HOMOLA; J. VIELMA; M. MORÍNIGO; A. MIKOLA; M. SILLANPÄÄ; A. ACEVEDO-MERINO; **ENRIQUE NEBOT**; I. LEVCHUK (2020). A comparison of photolytic, photochemical and photocatalytic processes for disinfection of recirculation aquaculture systems (RAS) streams. **Water Research**. Volume 181, 115928

JAVIER MORENO-ANDRÉS; GONZALO FARINANGO; LEONARDO ROMERO-MARTÍNEZ; ASUNCIÓN ACEVEDO-MERINO; **ENRIQUE NEBOT** (2019). Application of persulfate salts for enhancing UV disinfection in marine waters. **Water Research**, 163 article nº 114866

ISAÍAS VICENTE-CERA, JAVIER MORENO-ANDRÉS, DAVID AMAYA-VÍAS, MIRIAM BIEL-MAESO, MARINA G. PINTADO-HERRERA, PABLO A. LARA-MARTÍN, ASUNCIÓN ACEVEDO-MERINO, JUAN ANTONIO LÓPEZ-RAMÍREZ & **ENRIQUE NEBOT**. (2019). Chemical and microbiological characterization of cruise vessel wastewater discharges under repair conditions. **Ecotoxicology and Environmental Safety**. Volume 169, Pages 68-75

MORENO-ANDRÉS, J., ROMERO-MARTÍNEZ, L., ACEVEDO-MERINO, A., & **NEBOT, E.** (2017). UV-based technologies for marine water disinfection and the application to ballast water: Does salinity interfere with disinfection processes?. **Science of The Total Environment** Volumes 581–582, pp 144–152

C.2. Congress

ROMERO-MARTÍNEZ, L.; MORENO-ANDRÉS, J.; ACEVEDO-MERINO, A.; NEBOT, E. *Reducing the concentration of viable microalgae in ballast water discharge with TiO₂ photocatalysis*. ORAL PRESENTATION

6th European Conference on ENVIRONMENTAL APPLICATIONS OF ADVANCED OXIDATION PROCESSES. Portorož, Slovenia. Junio, 2019. National Institute of Chemistry, Slovenia

JAVIER MORENO-ANDRÉS, RUBÉN RIOS-QUINTERO; ASUNCIÓN ACEVEDO-MERINO, ENRIQUE NEBOT. Disinfection of seawater by UV-activated persulfate: Performance and effects derived from different aqueous matrices. ORAL PRESENTATION

X European meeting on Solar Chemistry and Photocatalysis: Environmental Applications (SPEA). Almería (España). Junio, 2018. CIESOL

JAVIER MORENO-ANDRÉS, ROMERO, ASUNCIÓN ACEVEDO-MERINO & ENRIQUE NEBOT *Effects on different photochemical treatments on marine bacteria: Inactivation and post-treatment evaluation*. ORAL PRESENTATION

Environmental applications of advanced Oxidation Processes (EAAOP5). Praga (República Checa). Junio 2017. INSTITUTE OF CHEMICAL TECHNOLOGY, PRAGA

C.3. Research projects, indicating your personal contribution. In the case of young researchers, indicate lines of research for which they have been responsible.

Project title: Análisis del riesgo ambiental asociado al lavado de gases de escape en buques mediante scrubbers y evaluación de tecnologías para su minimización (Ref: PID2021-123155OB-I00)

Budget (euros): 169.400,00 €, **Financing entity and period of validity:** PROYECTOS DE GENERACIÓN DE CONOCIMIENTO 2021. Ministerio de Ciencia e Innovación, de 01/01/2022 hasta 31/12/2025. **Rol:** Main Researcher

<p>Project title: Estrategias para minimizar la transferencia de contaminación portuaria producida a través de las aguas de lastre. Prevención de la contaminación microbiológica (Ref. TED2021-130994B-C31)</p> <p>Budget (euros): 126.000 €. Financing entity and period of validity: Proyectos de Transición Ecológica y Digital 2021. Ministerio de Ciencia e Innovación, de 01/12/2022 hasta 30/11/2025. Rol: Main Researcher</p>
<p>Project title: Mejora de los procesos de higienización en instalaciones de producción de MOLUSCOS BIVALVOS a través del desarrollo y optimización de tecnología UV-LED. MOBILEL. (Referencia: PCM_00015)</p> <p>Budget (euros): 151.603, 35 €. Financing entity and period of validity: Plan Complementario de Ciencias Marinas, y del Plan de Recuperación, Transformación y Resiliencia. Consejería de Universidad, Investigación e Innovación de la Junta de Andalucía. 1/01/2023 a 31/12/2025. Rol: Main Researcher</p>
<p>Project title: Desarrollo de procesos tecnológicos para la protección de los recursos hídricos amenazados por floraciones nocivas de microalgas. Ref FEDER-UCA18-108023</p> <p>Budget (euros): 153.200 €. Financing entity and period of validity: Programa Operativo FEDER Andalucía 2014-2020, de 01/05/2020 hasta 30/04/2023. Rol: TUTOR Researcher</p>
<p>Project title: Gestión avanzada e integrada del agua en buques crucero (CTM2014-52116-R)</p> <p>Budget (euros): 152.000,00 €. Financing entity and period of validity: Ministerio de Economía y Competitividad. PROYECTOS DE I+D+I, DEL PROGRAMA ESTATAL DE INVESTIGACIÓN, DESARROLLO E INNOVACIÓN ORIENTADA A LOS RETOS DE LA SOCIEDAD De 01/01/2015 hasta 31/12/2017. Rol: Main Researcher</p>
<p>Project title: Campus Transfronterizo para la Gestión Sostenible de los Recursos Hídricos (Campus EAgUa). 0072_CAMPUS_EAGUA_2_E</p> <p>Budget (euros): 622,950 €. Financing entity and period of validity: Ministerio de Economía y Hacienda. 2ª Convocatoria Programa de Cooperación Transfronteriza España - Fronteras Exteriores (POCTEFEX). 01/10/2012 – 30/ 06/2015. Rol: Researcher.</p>
<p>Project title: Red de Cooperación en I+D+i Orientada al Diseño de un Sistema Sostenible y Transfronterizo de Transporte Marítimo-Fluvial en el Golfo de Cádiz. ESPOMAR</p> <p>Budget (euros): 363.049,11 €. Financing entity and period of validity: Programa Interreg V-A España-Portugal (POCTEP) 2014-2020. de 01/10/2015 hasta 31/12/2019</p> <p>Rol: Researcher</p>
<p>Project title: Análisis de los retos económicos, tecnológicos y ambientales de la entrada en vigor de la Convención para el Control y Gestión de las Aguas de Lastre. Ref FEDER-UCA18-105151</p> <p>Budget (euros): 49.938,00 €. Financing entity and period of validity: Programa Operativo FEDER Andalucía 2014-2020, de 01/04/2020 hasta 31/03/2021. Rol: Main Researcher</p>

C.4. Contracts, technological or transfer merits.

PATENT: Aparato y método para la oxidación hidrotérmica de residuos orgánicos insolubles en agua

INVENTORS: Martínez de la Ossa, E. Nebot Sanz, E., Portela Miguélez, J.R, Sánchez Oneto, J.

Número de registro y publicación de la Oficina Europea de Patentes: EP20050825261 y EP1834928.

Año de registro en la Oficina Europea de Patentes: 01.12.2005

ENTIDAD TITULAR: Universidad de Cádiz

PAISES A LOS QUE SE HA EXTENDIDO: PAISES PCT

EMPRESA/S QUE LA ESTÁN EXPLOTANDO: BEFESA CTA Y EMASESA