

## Search for a Spanish Partner for a Bilateral R&D Project

Organization	
Date of Request:	23/01/2023
Company name:	University of Sharjah
Contact person and title/ designation:	Dr. Adewale Giwa/Assistant Professor, Mechanical and Nuclear Engineering Department
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### SECTION 1: Entity launching the partner search

*(Please give brief / to the point explanations. For more explanation on any point below, you may add a short paragraph as an annexure, with this document.)*

Sector	Higher Education
Entity mission or core functions	The aim and vision of the University of Sharjah is to contribute to the qualities shared by renowned universities around the world. The education and research programs offered tend to be comprehensive and multi-disciplinary.
Date of establishment	1997
Ownership (if public and traded, add stock exchange and ticker symbol)	The University of Sharjah was established by its founder, the ruler of Sharjah H.H. Sheikh Dr. Sultan bin Muhammad Al-Qasimi.
Total number of employees	
Number of employees in R&D	
Key products sold or services provided	Different types of membranes, including polymeric, ceramic and mixed matrix membranes, for purification and removal of pollutants.
Entity core technical competences	Carbon capture and sequestration; Sustainable production; Renewable energy.
Key R&D programs and activities	2023 is the year of sustainability in the UAE. The UAE is hosting COP28 climate summit

	<p>which aims to reduce emissions responsible for global warming. The UAE Net Zero 2050 strategic initiative is a national drive to achieve net-zero emissions by 2050. Energy production &amp; consumption is, by far, the biggest contributor to emissions and climate change. Our R&amp;D activities are contributing to UAE's drive to achieve net-zero emissions through the fabrication of membranes capable of separating CO<sub>2</sub> from the flue gases emitted by power plants, industries, and transportation vehicles. Flue gases consist of nitrogen, CO<sub>2</sub>, trace amounts of oxygen and other gases, and water vapor. The separation of CO<sub>2</sub> from flue gases can provide cleaner end-of-pipe treatment for flue gases before they are released. This treatment will contribute significantly to UAE's sustainability agenda.</p>
<p>Examples of accomplishments</p>	<p>Previous works on the fabrication and application of membranes for removal of various types of pollutants including organic pollutants and heavy metal ions have been carried out. The application of membranes for the removal of contaminants of emerging concern from water has been studied and water-energy nexus has been investigated. Polyethersulfone membranes, polyvinylidene fluoride membranes, mixed matrix membranes with graphene oxide and cyclodextrin nanomaterials, membranes with additives (polyvinyl alcohol, ethanol, and glycerol additives), titanium dioxide and manganese dioxide ceramic membranes have been fabricated. The separation performance of these membrane operations has been predicted using numerical modeling and artificial neural networks. As a result of these achievements, Dr. Adewale Giwa is currently included in the List of the Top 2% of Scientists in the World by Stanford University.</p>
<p>Company strategic orientation</p>	<p>Sustainable technology development, that is, the development of technologies that are technically efficient, environmentally friendly, economically viable and socially acceptable to ensure the continuous availability of resources.</p>

<b>SECTION 2: Spanish Company Profile</b> <i>(Please provide a brief summary of the prospective partner company or organization. This summary may address some or all of the points below)</i>	
Profile of ideal technology partner	Global leader in the design and manufacturing of nonporous or dense membranes and membrane systems. Global leader in the design and construction of membrane setups/plants for separation.
Core technological competencies and expertise	Fabrication of separation membranes with excellent permeability, selectivity, antifouling property, and mechanical strength. Design and fabrication of setups (laboratory, pilot, demonstration, and large-scale facilities) for membrane testing and performance evaluation.
Other essential qualifications (e.g.: ownership, track records etc.)	Proven track records of existing products in the market and products' commercial viability.
If you have a list of companies with whom you are in contact or interested in contacting, please provide contact details	<ul style="list-style-type: none"> <li>- ACCIONA</li> <li>- Sintec</li> <li>- Almar Water Solutions</li> <li>- Other companies with significant presence in Spain including DuPont and ABB.</li> </ul>
If you are interested in collaboration: please specify details and other important information you want to share with a potential company	Preexisting Intellectual Property would be kept by its owners while Intellectual Property developed within the project would be discussed to be shared.
Interested areas of collaboration	<ul style="list-style-type: none"> <li>- Membrane Fabrication</li> <li>- Membrane Characterization</li> <li>- Membrane Performance Assessment</li> <li>- Carbon Capture Using Membranes</li> </ul>
Specific R&D contribution you are seeking/offering	R&D contribution offered: Innovative membrane formulations for efficient CO <sub>2</sub> separation from flue gases. R&D contribution sought: Membrane fabrication and testing setup, characterization facilities, and systems for membrane-based CO <sub>2</sub> separation at different operating conditions.



**Name: Adewale Giwa**  
**Date: 23/01/2023**