

Interview with **Prof. Jean-Claude CHARPENTIER**

National Higher Institute of Chemical Industries (ENSIC)
Nancy France



Prof. Dr. Eng. J-C. CHARPENTIER

is Professor of Chemical Engineering at ENSIC and Emeritus CNRS Research Director at Laboratoire Réactions et Génie des Procédés at ENSIC, Université de Lorraine in Nancy. He has been Director of ENSIC at Nancy and ESCPE at Lyon, Scientific Director of the Department of Engineering Sciences at CNRS in Paris and President of the European Federation of Chemical Engineering. He has also been consultant and member of the scientific board of several chemical and petrochemical companies. He is one of the three experts who composed the Strategic Advisory Board (SAB) of XERIC to accompany the project from the start to the end.

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Can you please tell us a little bit about yourself?

Graduated from Ecole Centrale de Lille, I received my PhD degree in Chemical Engineering from the University of Nancy. After a Post-Doc at the University of Cambridge, I became head of a research group, then co-director of the Laboratory of Chemical Engineering Sciences in Nancy and then scientific director of the Engineering Sciences Department of CNRS, in Paris.

My research investigations concern the hydrodynamic and mass transfer in catalytic multiphase reactors used in industry for air and water depollution. I am also quite interested in the innovative green process engineering, aiming at producing much more and better but using much less of energy and raw materials.

When you were asked to become a member of the XERIC SAB, what convinced you?

Thanks to the trans-disciplinary project Nano-MemPro, coordinated between 2004 and 2008 by Prof. Gilbert Rios from EMH, I am engaged in the topic of membrane science and engineering since many years.

I quickly understood and liked the fact that the work planned in the frame of XERIC would be valuable for electric vehicles, but not only. The scientific background and the technology developed would also be of interest for various applications, such as in chemical, pharmaceutical and food industries.

I was then looking forward to using my professional experience to help XERIC meet its challenging objectives!

After 3 years of work, the final meeting is now going to take place in Brussels in a few weeks. What is your general assessment of the project?

The XERIC innovative project is a success! Dealing with a current challenge of our society within the general policy of sustainability, XERIC has shown a possibility to extend range of electric vehicles, saving energy and improving comfort. This kind of solution is in the air today.

What are, for you, XERIC's main achievements?

According to me, the main achievements concern the scientific researches and the remarkable experimental and numerical modeling data obtained, which were strongly required for the design of the XERIC hybrid system. Those results have been reached thanks to the top rate quality of both academic and industrial partners involved in a complementary manner.

Do you remember a landmark moment of the project to share with us?

Without going into technical details, I really saw the resolution of technical issues thanks to scientific progresses done by the XERIC partners in the

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field of membrane science and technology.

One of the landmark moments was to learn at the end of April 2018 that the prototype of the XERIC Climate Control System (CCS) works perfectly in the climatic chamber set up by FRIGOMAR. There-

fore, the performance of the XERIC CCS has been demonstrated in relevant environment, which corresponds to a TRL6: a value of TRL higher than TRL4 initially claimed and closer to market interests!

From your perspective, what is the outlook for the climate control technology developed in the frame of XERIC?

Evidence of the application of the XERIC technology in operational environment for OEM, car manufacturers and marine industry within the next 2 years.

What will you remember most from your experience as SAB member of XERIC?

I particularly appreciated the fruitful dialogues with competent academic and industrial partners in a R&D field which is not usually mine: electrical vehicles and more generally car and marine industry. A special thanks to the EMH team for the organization of the SAB meetings and the extremely valuable related reports!

Thanks for your time and your valuable guidance provided so far!

XERIC in brief

XERIC is a European Research & Innovation Project

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Number of partners: 8

Coordinator: Dr. Eng. S. GAETA
GVS spa - Italy

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