

### Interview with Anne JULBE *Researcher*



Anne JULBE defended her PhD in sol-gel derived  $\text{SiO}_2$ , SiC membranes and materials in 1989 at Montpellier II University and joined CNRS as tenure track researcher on the same year. She launched and developed activities on ceramic membranes for gas separation and catalytic reactors, with nanophase oxides and zeolites, using sol-gel, microwaves- and supercritical  $\text{CO}_2$ -assisted methods. Anne defended her Habilitation thesis on "How Material Science contributes to the development of Membrane reactors" in 2002 and was promoted as CNRS Head research scientist in 2004. She supervised teamwork on "Ceramic & hybrid membranes by sol-gel & CVD methods" from 2007 to 2010 and has since been in charge of the DM3 department on "Design of Membrane Materials and Multifunctional systems" at the European Membrane Institute in Montpellier. Her current research themes include design of original nanocomposite multifunctional membranes for specific applications in gas/vapour/liquid separations, catalytic reactors and electrochemical systems.

#### **You're a head research scientist with more than 20 years' research experience. How would you define your job as a researcher?**

I would like to answer you with the idealized vision I had of what it was like to work as a researcher back in 1989 when I entered CNRS. Working as a researcher was a wonderful way of associating creativity and innovation either for fundamental research and/or to develop industrial applications and solve problems related to everyday life. It was also a great human experience for me, working with a team made up of young students and experienced colleagues, all of them driven by the same passion initiated and fueled by Pr. Louis COT. I really felt we were writing and building a story together. We were like a big family, sharing the membrane-related problems we had to solve on a daily basis and developing an enthusiastic team spirit.

Money was not an issue at that time! We had time to be creative and to focus on science only, including out-of-the-box science. We are desperately short of both time and money these days compared to that time and it is difficult to keep team motivation up while being always under pressure to be highly productive -including with boring administrative tasks, deliver things right on time and find money for tomorrow! To top it all, we also have to assess what we have done so as to plan what comes next bearing in mind what is trendy.

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CARENA is a large-scale integrating project funded by the EC

### **We'd like to catch a glimpse of your daily activities. What is an average day or week for you?**



IEM building

Most of my daily activity is unfortunately dedicated to administrative work and meetings. I also spend too much time with my tyrannical e-mail box. Way too much time is dedicated to reporting and reviewing for evaluation panels. Then I have ok activities: a few teaching periods and official project meetings. My favorite activity is brainstorming with the students working in my group. I really enjoy supervising students, helping them find their way, stimulating their development and initiating new ideas and projects. I have been very lucky with my students and the success stories we've had are always a great motivation for me and for the new students joining us.

### **You seem to favor a multidisciplinary approach to carry out your work. The CARENA project has also been designed with a strong emphasis on multidisciplinary. What progress can be expected if chemists work in closer relation with other disciplines?**

Catalytic membrane reactors (CMR) are wonderful examples where multidisciplinary expertise is paramount to reach our goals. In fact, CMR are what I started working on when I entered CNRS, so I found myself right away in a cross-disciplinary context. There was this researcher from the Lyon catalysis research institute, now called IRCELYON, who wanted to develop a catalytically active membrane distributing oxygen in a reactor for the oxidative coupling of methane. Controlling parameters and obtain high selectivity and high reaction yields was quite a challenge in such a reactor! So the researcher decided to contact membranes specialists to get a membrane that would work both as a catalyst and an oxygen distributor... That's how I came into the picture.

I said yes to the challenge and started developing my CNRS research activities on that theme, in collaboration first with Dr. Claude MIRODATOS and next with Dr. Jean-Alain DALMON, both from IRCELYON. We were all very enthusiastic and we developed several original membrane systems together. I believe it is really thanks to multidisciplinary that significant breakthroughs are made: cross-analysis on a given material is paramount! For instance, we've hired a physician for CARENA, the aim being to develop a new characterization technique for operating membranes. We hope it'll pave the way for another success story! Having experts in membrane/material science, catalysis, chemical engineering and modeling, all collaborating with end-users, is a great opportunity the European Commission gave our consortium and the students involved in the project.

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