

Feature interview: Professor José Carlos Pinto

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Dear Readers and Colleagues,

It is a pleasure to invite you to read the Feature Interview with Professor Dr. José Carlos Pinto. From his Lattes resume (<http://lattes.cnpq.br/6479420970768737>), we have retrieved this info:

“José Carlos graduated in Chemical Engineering from the Federal University of Bahia (1985), obtained his MSc. degree in Chemical Engineering from the Federal University of Rio de Janeiro (1987) and a DSc degree in Chemical Engineering from the Federal University of Rio de Janeiro (1991). He is currently Professor Titular of Programa de Engenharia Química of COPPE, Federal University of Rio de Janeiro, and member of Programa de Pós-Graduação em Engenharia de Processos Químicos e Bioquímicos of Escola de Química, Federal University of Rio de Janeiro. José Carlos is a member of the editorial committee of Polímeros: Ciência e Tecnologia (edited by ABPol), Macromolecular Reaction Engineering (edited by Wiley), and Processes (edited by MDPI). José Carlos has been a full member of the Brazilian Academy of Sciences since 2010 and of the National Engineering Academy since 2014. José Carlos has experience in Chemical Engineering, emphasizing general chemical reactors and particular emphasis in modeling, simulation, and control of polymerization systems. José Carlos has published over 450 papers in scientific journals. He has over 8500 citations in the bases “Web of Science”, “Scopus” and “Google Scholar” with an H factor of 46.”

Besides his impressive CV, as Zé Carlos' former student, I can state that Professor Pinto is one of the most noble-polished-talented-intelligent-generous Scientists I have ever had the privilege of working with.

Professor Pinto was who guided me in my first steps in the field of Experimental Design, which transformed the way I face Science! During the time I worked directly with him, I saw his power influencing synergetically the lives of so many professionals and students who also have or have had the opportunity to work in his laboratory.

Always present and available, Professor Pinto was the ConBraPA2020's President of Honor, taking part in the Closing Round Table. So, without further ado, enjoy the interview given by Professor Pinto to BJEDIS 1(2)!

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"I did my undergraduate course in Chemical Engineering at Universidade Federal da Bahia (UFBA, 1981-1985). Afterwards, I started my MSc course at COPPE, Universidade Federal do Rio de Janeiro (UFRJ, 1986), but was invited to join the DSc course before the MSc defense due to my good performance in the disciplines. At that time, it was necessary to present a short dissertation to get the DSc application approved, despite the special invitation to join the DSc. This short dissertation was defended in December 1986, and then I was allowed to initiate the DSc course in 1987. I defended the DSc thesis in December 1991, under the supervision of Prof. Evaristo Biscaia. I also had the opportunity to spend two years (1989-1990) as a Visiting Scholar at the University of Wisconsin, at Madison, USA, under the guidance of Prof. Harmon Ray. I really enjoyed this trajectory.



During my years as a student, I believe I had seven main mentors (among many more): (a) Prof. Evaristo Biscaia taught me to like numerical procedures and numerical details; (b) Prof. Harmon Ray taught me to deal with experiments and to love polymer materials; (c) Prof. Enrique Lima taught me to enjoy dynamic trajectories and dynamic problems; (d) Prof. José Luiz Monteiro taught me the importance of parameter estimation and statistical design procedures; (e) Prof. Giulio Massarani taught me the importance of simple experimental setups; (f) Prof. Fernando Luiz Pessoa and Rogerio Lacerda taught me to like numerical simulations and provided real stimuli for the development of a scientific career. As we see, we are the products of many effects.

Indeed, the desire and curiosity to solve new problems inspired me to become a Scientist. As a matter of fact, I have always enjoyed studying and discovering new facts, problems and knowledge. However, when I had the opportunity to participate in an internship program at UFBA, managed by a group of engineering scientists (Fernando Pessoa and Rogerio Lacerda were among them), I definitely understood that I wanted to pursue that type of professional career and trajectory.

To my mind, my most significant achievement is being the father of three! :-). Besides that, I am very proud of the work we have built in the areas of parameter estimation, statistical characterization of parameter estimates and statistical design of experiments. In particular, I believe that the description of the confidence regions of parameter estimates without making use of the ellipsoidal approximation and the theoretical approach that combines the sequential design procedures conventionally used for either optimal parameter estimation or model discrimination independently constitute significant technical achievements. I am also very proud of the new polymerization processes developed at EngePol; particularly the combined suspension/emulsion polymerization procedures used to manufacture core-shell polymer particles that can be utilized as supports for the production of biocatalysts.

Among my favorite research topics, I cite the use of actual industrial data online and in real-time to identify process models that can be used to perform different tasks, including fault identification, fault diagnosis, process monitoring, process control and process optimization, among others. In my opinion, this research topic will be increasingly important in industrial environments, given the continuous growth of computer speed, memory and storage capacity, and the continuous reduction of hardware costs. Besides, this research topic creates a very clear bond between the procedures developed at the researcher's desk and the usefulness of data handling techniques in the industrial environment. For these reasons, I believe BJEDIS should include this research topic as a *hot topic* in the journal scope and encourage submissions of papers in this field.

As advice to share with fellow Scientists working on scientific data, I would like to state that the scientists that work in this field should concentrate on the fundamental aspects of data handling to understand the statistical consequences of numerical procedures and proposals. Unfortunately, I see too many researchers involved with numerical applications that do not deeply understand the theoretical grounds that support those procedures and explain the existing LIMITATIONS, which are frequently neglected or ignored. One must always recognize that there is a statistical groundline that explains the data variability and many important aspects of the estimated model performances. If these aspects are neglected, data analyses become simple numerical exercises that, at the very end, only try to add some new parameters to provide the already expected results. We should avoid torturing the data; let the data speak by themselves."