



Preface

Serafín Bernal: Profile of an excellent professor

This special issue of *Catalysis Today* is a tribute to the career of Serafín Bernal after his retirement.

The scientific vocation of Prof. Bernal began in the Department of Inorganic Chemistry of the Universidad de Sevilla where he initiated his research, moving to Cantabria and finally to Cadiz. He has been in Cadiz since 1975, the year in which he attained his PhD degree. In 1978 he gained a position as associate professor of inorganic chemistry in the "Universidad de Cádiz", and in 1987 he reached the full professor chair. He was also a visiting scientist in "Texas A&M University" (1981–1982) and in the "Institut de Recherches sur la Catalyse" in Lyon (1986–1987).

Since the very beginning of his scientific career the research he has developed has been linked to the solid state and surface chemistry of the rare earth oxides and their applications in heterogeneous catalysis. In the last two decades this interest has focused on cerium oxide based catalytic materials. His key contributions to the understanding of the redox properties of these systems have opened the way to many other researchers. Also worth highlighting is the contribution of Prof. Bernal to the application of Electron Microscopy techniques, in close combination with surface chemical techniques, to the characterization of nano-crystalline powdered materials. Most of these works were related to catalytic applications for clean energy production and for automotive pollution control.

More than 120 papers is the scientific legacy of Prof. Bernal to date, and he remains an active author as honorary Professor. The projects which served as a framework for his research received approval and financial support from the European Community, Spanish national funds and from the Andalusia research, development and innovation program (PAIDI), and have also involved collaboration with companies such as Molycorp Minerals or Rhodia Group, today part of Solvay. However, it is not only the number of his contributions; it is also pertinent to highlight their soundness, as a result of the rigorous way of viewing and conducting science inherent to his personal view of research.

This issue in honor of Serafín Bernal is focused on cerium based materials and their catalytic applications. It is certain that, regardless of future trends, cerium is nowadays a key component in many catalytic formulations and remains a hot topic in catalysis literature.

Most of the researchers who have collaborated with Professor Bernal during the last ten years have accepted the invitation to contribute with a publication on this special occasion as a testimony of their recognition, personal appreciation and affection for Serafín.

Before closing this preface and on behalf of all those of us who have had the honor to be part of his research group, to grow scientifically under his master guidance and to closely share with him the emotion of enjoying research, I want to express Prof. Bernal our most sincere gratitude. Gratitude, after so many years, for his devoted dedication to teaching us the importance of a self-critical attitude, of delicately designing experiments to get the most precise and reliable possible data, of always putting together complementary points of view to propose sounded chemical hypothesis and of confirming these hypothesis through further, more delicate, experimentation. In summary, let us explicitly thank you Serafín for showing us the way to pursue *SCIENCE* in the, as we all may easily agree, intricate field of heterogeneous catalysis.

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