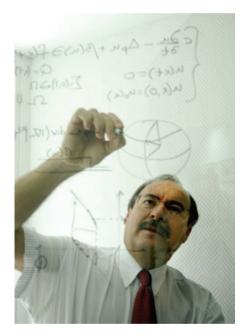# DEDICATION TO PROFESSOR
JESÚS ILDEFONSO DÍAZ
ON THE OCCASION OF HIS 60TH BIRTHDAY

A. C. CASAL AND J.-M. RAKOTOSON

Professor Jesús Ildefonso Díaz

Professor Díaz has worked intensively in many important and interesting areas of Applied Mathematics, such as theoretical and applied aspects of Nonlinear Partial Differential Equations, in Fluid Mechanics models (including Plasma Physics), Geophysical models (Climatology, Glaciology, Viscoelastic gravity-layers,..), Reaction Diffusion models, Elasticity and Homogenization models, Control theory models, among several others (semiconductors, Ginzburg-Landau and Nonlinear Schödinger equations). He has also worked in nonlinear analysis tools, closer to Pure Mathematics, such as accreative operators, rearrangement, gradient estimates, etc. His many activities include as

well contributions in Science History, Divulgation and a great deal of scientific management.

His vita is in his web page: http://www.mat.ucm.es/˜jidiaz/. In it, which is worth to read, one can find a more complete, and impressive, list of his activities, such as academic positions, publications, etc. Since the vita gathers just plain references, we woould like to add some words and comments on some of his many personal and professional qualities and motivations, which help to understand such an active life.

He has professed profound respect and friendship for his teachers, among them, Alberto Dou, Haïm Brézis, his PhD Thesis advisors, Philippe Bénilan and, later, Jacques Louis Lions. They have been very special to him, with a profound influence on Prof. Díaz views on mathematics. Besides them, he has also taken care of his professional relationships, which he usually has transformed in good, loyal and fruitful friendships.

Prof. Díaz is very original researcher with many qualities. He can take advantage of every bit of his time, grows in adversity and he is always in good mood. He always takes advantage of the opportunities which, many times, he contributes to create.

His has a natural and remarkable ability to improve his neighbourhood of influence and, gradually, to enlarge both, neighbourhood and influence.

As said in his vita, the numbers related to his production so far is really impressing.

Concerning research (at October, 2011), he has 180 papers in research journals of high level, another 135 contributions to published Proceedings of meetings, several in progress, 7 books and memoirs, 8 chapters in books, and he has been one of the editors in 17 books. On scientific divulgation, he has 35 articles, 2 memoirs, 2 contributions to published Proceedings of meetings, 19 chapters in books.

He has been advisor of 18 PhD Dissertations. Some others are in progress.

There are miscellaneous publications, 15 reports and another 49 including newspaper articles, opinion, obituaries, etc. Financed projects, 37.

In all his production he has shown a natural ability to collaborate with people from all over the world. Besides the works written only by him, he has many others with over 170 collaborators.

In the improvement of his closer neighbourhood, he created in the eighties the Department of Applied Mathematics (since the main trend in Spain at that time were Pure Mathematics, this task was not easy at all) at the Facultad de Matemáticas of the Universidad Complutense de Madrid (UCM). He led it for several years, in which it grew very much, with regular seminars, PhD dissertations in progress, visitors, travels, etc.

At the following level, that of the University, he worked in the first editorial board of the Revista Matemática de la UCM, and he has organized up to six summer courses of the UCM, two of them with J. L. Lions, on mathematics, climate and environment, another on environment and economics. Another one dealt with mathematics and architecture. Three more were on different topics on interdisciplinary mathematics, more recently, within the frame of the IMI (Inderdisciplinary Mathematical Institute), also founded by Prof. Díaz at the UCM.

He had the idea of organizing a Congress on Differential Equations and Applications, in 1979. Professors Díaz, Casal, Hernández and Lobo were the organizers. It

happened to be the first one of a series of them in Spain, of increasing interest and relevance, still going on. The 22nd of them took place last September in Mallorca.

He revitalized and even started some of the associative movement in mathematics in Spain.

He was in the Organizing Committee of Spanish Society of Applied Mathematics (SEMA) in 1991, and was its President the following year. He collaborated in the re-foundation of the Spanish Royal Society of Mathematics (RSME) in 1997. Te Society was practically inactive in 1995.

He was a very active Member of the Spanish Committee for the 2000, Mathematics World Year. On occasion of it he promoted activities in many places. In particular, he organized a very important one at the Spanish Parliament, chaired with Jacques Louis Lions.

He went deeper in the relationship between Applied Mathematics and the society. He started relationships with institutions such as CIEMAT (Spanish Centre for research in Energy, Environment and Technology), for studies and doctoral program in Nuclear Fusion, and also with the Institute of Low Temperatures of the Spanish CSIC (High Council for Scientific Research). He was appointed for an important executive committee in the Spanish Foundation in Science and Technology, where he organized a Workshop on Mathematics and Industry, among other activities.

In still another level, 1997 he was elected Académico Numerario (Academician) of the Royal Academy of Science of Spain (he had been Corresponding Member since 1990). He worked to modernize and improve the Academy with many activities, as being the founder and main editor of the mathematics section of the Journal of the Academy (RASCAM, now in the citation index), and many more actions together with Profs. A. Liñán and M. de Guzmán.

He worked hard to have Profs. J. L. Lions, H. Brézis, H. Amann, A. Friedman and J. P. Bourguignon, as Corresponding Foreign Academicians.

With the crucial actions of Prof. Brézis, an agreement was made in 2003 between the French and the Spanish Academies of Science, for the first time in the history of both Academies. A joint congress of them was organized by Profs. Brézis and Díaz in Paris.

The close ties with France were a natural way to enlarge his activities also in his teaching duties. He was appointed as (one month) Professeur de première classe, at different French Universities, such as Toulouse, Nancy, Pau (he has been awarded as Honorary Doctor in this Université de Pau et les Pays de l'Adour), Metz, Tours, Poitiers, Paris VI, Montpellier, etc. He organized many French-Spanish Congresses on various topics, French-Spanish Workshops on Numerical Simulation, etc. Their Proceedings became several prestigious books of reference. He was a member of the scientific committee for the 60th birthday of Professor Roger Temam in 2000.

He has also been Honorary Member of the Mathematics Research Center, University of Wisconsin-Medison, USA, and Profesore Visitatori del Consiglio Nacionale delle Ricerche, Italy (Universities of Roma II and L'Aquila).

He elnarged these actions to other countries. He promoted Integrated Actions with Germany (2002), and organized other activities such as the Italian-Spanish meeting on Nonlinear Analysis and Applied Mathematics (woth Boccardo, Tesei, di Benedetto,

Vázquez and Herrero, in 1989), and the NATO Advanced Study Institute on the Mathematics of Models for Climatology and Environment in 1995.

He developed Programmes of Free Boundary Problems of the European Science Foundation, was a member of the Scientific Committee of the 3rd Congress of Mathematics (Barcelona, 2000).

At present he is Coordinator of the European Programme FIRST (Fronts and Interfaces in Science and Technologies, with activities in ten countries and two big industries, in the European Seventh Framework Programme (2010-2013).

Since September 2003, he is he only Spanish person in the editorial board of the Journal of the European Mathematical Society. He belongs to many more International Committees and Editorial Boards of prestigious journals.

There are other things in his activities such historic research of the findings letters and documents of scientists such as Gauss, Faraday, etc., related with their relations as Foreign Members of the Spanish Real Academia de Ciencias.

After much work, he succeed to have the word "modelización" accepted by the Royal Academy of the Spanish Language to be included in their Spanish Official Dictionary as the right Spanish translation for the English word "modeling".

He likes to go to movies, plays sports such as tennis, bike, hike, and goes to listen music, as classic, jazz, flamenco, etc. (special mention to Beatles), activities usually shared with friends. He is a dedicated husband, stimulating father and (recent) grandfather, close brother and devoted son.

A group of colleagues and friends organized an International Congress on this occasion. Its name was Non linear models in partial differential equations: A conference on occasion of Jesús Ildefonso Díaz's 60th birthday. See the web page: http://www.mat.ucm.es/˜homenajeJIDiaz60/. It took place on June, 14-17, 2011, in the Palacio de Lorenzana, (UCLM), a beautiful 18th Century building in Toledo, Spain (Ildefonso's birthplace).

The members of Scientific Committee were Profs. H. Brézis (President), H. Ammann, S. N. Antontsev, A. Friedman, R. Glowinski, A. Liñán, E. Sánchez-Palencia, and R. Temam. All of them delivered a special lecture.

The members of the organizing Committee were: A. C. Casal (President), J. F. Padial, J. I. Tello, L. Tello (Univ. Politécnica de Madrid); H. Herrero, R. Martín, P. Pedregal, V. M. Pérez García (Univ. Castilla-La Mancha); G. Díaz, A. M. Ramos (Univ. Complutense de Madrid); J.-M. Rakotoson (Univ. Poitiers, France); L. Alvarez (Univ. Las Palmas); G. Galiano (Univ. Oviedo); J. Hernández (Univ. Autónoma de Madrid); E. Schiavi (Univ. Rey Juan Carlos, Madrid).

Besides the members of the Scientific Committee, the speakers were: H. Attouch (Montpellier, France), C. Bandle (Basel, Switzerland), A. Bermúdez de Castro (Santiago de Compostela, Spain), L. Boccardo (Roma, Italy), V. Caselles (Barcelona, Spain), M. Chipot (Zurich, Switzerland), C. Conca (Santiago, Chile), J. Fleckinger-Pelle (Toulouse, France), A. Fowler (Oxford, UK), J. Giacomoni (Pau, France), M. A. Herrero (Madrid, Spain), G. Hetzer (Auburn, USA), D. Hilhorst (Paris, France), M. Madaune-Tort (Pau, France), H. Matano (Tokyo, Japan), F. Murat (Paris, France), T. Nagai (Hiroshima, Japan), P. Pedregal (Ciudad Real, Spain), M. Pierre (Cachan, France), O. Pironneau (Paris, France), J. M. Rakotoson (Poitiers, France), S. Shmarev

(Oviedo, Spain), P. Takáč (Rostock, Germany), M. A. Pozzio (Roma , Italy), J. L. Vázquez (Madrid, Spain).

The avarage daily attendance was about 120 people. Prof. Díaz was very happy meeting again, in particular, the colleagues with whom he had fruitful and friendly relationship all along his life, among many others. There were very many, indeed, and a warm atmosphere surrounding him and all of us was built. As in many other similar events, there weren't parallel sessions. The number of the talks in the schedule had to be limited, thirty three in the four days of the Congress. Since the people wishing to participate, attends or not, was much larger than the possible number of invited talks, besides some Poster's sessions, the organizers thankfully accepted the offering of this Journal, Differential Equations & Applications, to publish two special issues on this occasion, to gather all written communications of anyone willing to contribute with a paper.

As members of the Organizing Committee, these two authors want to thank very much the assistance, help, work, presence and general support of many people. In particular those of the Scientific Committee, the Organizing Committee, volunteers, sometimes in a silent but very efficient way, the lecturers, the posters presenters, the organizing Centers and sponsoring organizations, the attendants and all the participants.

Concerning this publication, we could not end this preface without acknowledging the tremendous work invested by the reviewers of the papers in this issue, ensuring the high standard of quality of the published papers.

A. C. Casal
Universidad Politécnica de Madrid
Madrid
Spain

J.-M. Rakotoson
Université de Poitiers
Poitiers
France