Editorial of the special issue for the 70th birthday of Michel Chipot

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This special issue is dedicated to the celebration of Professor Michel Marie Chipot's seventieth birthday and contains eighteen papers written by friends, collaborators and colleagues who highly appreciate Professors Chipot's qualities as a mathematician, but also as a human being. The guest editors sincerely thank all authors for their contributions to the special issue.

Michel Marie Chipot was born in Gérardmer, in the Vosges department of France, on May 23, 1949. He obtained his Master degree, called at that time in France “Diplôme d'Études Approfondies”, in 1972 at the University of Nancy I, currently University of Lorraine. In 1975 he completed his PhD at the same university, on the topic *On a conjecture in elastic–plastic torsion problem*. In 1981, under the supervision of Haïm Brezis, he defended at Paris VI—currently Sorbonne Université—his State Doctoral thesis (Thèse de Doctorat d'État) *On some variational inequalities, flow in porous media*.

Michel M. Chipot started his professional career in 1971, as Assistant at the University of Nancy I. From 1985 to 1995 he was Professor at the University of Metz, currently University of Lorraine, and since 1995 he is Professor at the University of Zurich. Starting with the early 1980s, he was frequently invited as a Visiting Professor at prestigious American universities such as Brown University, University of Maryland, University of Minnesota and Carnegie Mellon University. In the recent years, he was a Visiting Fellow at the University of Oxford, at the Imperial College

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London as part of the Nelder Visiting Fellowship program, and since 2017, he is Visiting Professor at the University of Science and Technology of China, in Hefei.

During his career as an educator, Professor Chipot was the advisor of 25 PhD students, many of whom became at their turn confirmed researchers.

The works of Michel Chipot cover a vast area in the domain of analysis and more specifically in the field of partial differential equations. He published 200 papers on various subjects such as variational inequalities, calculus of variations, the study of elliptic and parabolic equations and numerical analysis. His important contributions in the domains of anisotropic, non-local, or singular perturbations problems are particularly noticeable. One of his important research topics, especially in the last decades, is the asymptotic analysis of PDE problems in domains becoming unbounded in one or several directions. One can say that Professor Chipot created a whole school around this theme, numerous papers on this subject being published by himself and his collaborators since the early 2000s. Many of the results contained in these works are gathered in two of his books, *ℓ goes to infinity*, Birkhäuser (2002) and *Asymptotic Issues for Some Partial Differential Equations*, Imperial College Press (2016).

Michel Chipot is also the author of eight books. Besides the two important monographs cited here above, we would like to mention the 1984 *Variational Inequalities and Flow in Porous Media*, published by the Springer Verlag Editions and the now classical *Elements of Nonlinear Analysis and Elliptic Equations: An Introductory Course* published in 2000 and 2009 respectively, by the Birkhäuser editions.

One of the talents of Professor Chipot is his ability to present complex mathematical issues in a very understandable manner. In consulting his books, the reader can appreciate his pedagogical qualities and the care that Professor Chipot grants to his readers. A common trait of his books is the particular importance granted to the presentation of the different methods and techniques that are employed. They are first introduced in a simple setting. Then, gradually, the problems are presented in a more general setting, and additional, more complex questions related to the initial problem are equally considered. In this fashion, the reader is kindly guided from an initial stage, where all the accent is put on the methods, to a general complex setting that would be much more difficult to understand if presented directly. For these reasons, the books of Professor Chipot are equally appreciated by undergraduate students, PhD students and confirmed researchers.

The activity of Michel Chipot in the editorial process of mathematical texts is remarkable by its extent. He was, or currently is, member of the editorial board of no less than 30 journals of mathematics, he was Editor in Chief of the book series *Atlantis Studies in Differential Equations* and now of the new series *Frontiers in Elliptic and Parabolic Problems* (Birkhäuser), and he is the founder and Chief Editor of the *Journal of Elliptic and Parabolic Equations*. He is also the editor of 20 proceedings and editor of the *Handbook of Differential Equations (Stationary Partial Differential Equations)*.

The devotion of Professor Chipot to the mathematical community is also illustrated by his important activity as organiser of mathematical events. During his period as a Professor at the University of Metz, he initiated the series of 2-days meetings called “Journées de Metz”. From 1988 to 1995, he organized 16 sessions of this series of meetings. In 1991, he created a cycle of conferences under the title “European Conference on Elliptic and Parabolic Problems”. In 2017, this cycle of

conferences became the “International Conference on Elliptic and Parabolic Problems”. From the creation of this cycle and up to the present day, he organized all the eleven conferences of this series. The first three editions took place between 1991 and 1997 in Pont-à-Mousson, France, and then, since 2001, they are being held in Gaeta, Italy. Taking into account the efforts and energy that he put in organizing these conferences, one can say that Professor Chipot is the soul of this conference, which now has its *aficionados* who simply call it “the Gaeta Conference”.

As a co-organizer, Michel Chipot was involved in more than 20 conferences that took place all over the world: in Switzerland, France, Italy, China, Canada, Greece, Spain. During his years at the University of Zurich, he co-organized in particular with Professor Herbert Amann the seminar *Arbeitsgemeinschaft Analysis*, that ended in 2015 with a closing conference, equally organized by him.

The achievements of Professor Chipot, some of which are briefly described in these lines, were recognized by the European Academy of Sciences in 2009, when Professor Chipot became elected member of this institution.

Michel Chipot is also an author of literature, written in his native language, the French. In the recent years, his Francophone collaborators had the opportunity to discover this aspect of his personality. They discovered a sensitive author, who gives a special attention to the complexity of his characters, revealing in this way their humanity, this being equally true for the main and secondary characters of his novels. As examples of his literary production, one can mention *Massimo et les filles*, his first novel published by the Elzevir Editions in 2011, *Le footballeur russe*, published by the Aire Editions in 2016, or *Les demoiselles Schuler*, published by the Orthogonal Editions in 2018. The last-mentioned novel is also interesting stylistically, being written without the use of dialogues. It is noteworthy that Michel Chipot managed to do this exercise without rendering the reading more arduous.

The human qualities of Professor Michel Chipot stand at the same high level as his outstanding mathematical abilities. This statement can be easily corroborated by the numerous students and collaborators that he had along the years. Michel Chipot collaborated with scientists coming from all over the world, from different cultural backgrounds, and he easily established excellent long-term connections with all these researchers, the epithet “excellent” being equally applicable both from a mathematical and a human point of view. One of the qualities of Professor Chipot is his facility to create a friendly, warm atmosphere within the team under his supervision, be it formed by PhD students, postdoctors or Visiting Professors. One of the authors of these lines can testify directly of this fact, as he had the privilege of being during three years a postdoctoral fellow at the University of Zurich in the team of Professor Chipot.

For all these reasons, and certainly more that unfortunately cannot all be mentioned here, the contributors of this special issue of “Journal of Elliptic and Parabolic Equations” would like to present it as a mathematical way to wish to Professor Chipot “Long life in good health and please continue to enchant us with more outstanding mathematical findings!”.

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