

Preface

Special Issue in honour of Professor Michael P. Païdoussis

The present special issue is a celebration by members of the research community in fluid–structure interaction honouring the 70th birthday of Professor Michael P. Païdoussis, the Founder and Editor-in-Chief of the Journal of Fluids and Structures. His anniversary has been highlighted by a series of festive events, including the presentation of a prize at the especially dedicated symposium organized in his honor at the recent 3rd MIT Conference on Computational Fluid and Solid Mechanics held in Cambridge, MA.¹ In this preface we include comments by several of his family, friends and colleagues who have had the privilege of being a part of his life and career over the years.

It is very hard for me to express in a few lines my thoughts and feelings for Michael. He is a generous and warm person, an excellent representative of his country, an Honorary Consul General of the Republic of Cyprus, a hard-working academic and scientist, a dedicated professor to his students. He is complex and yet simple, serious and yet gifted with a great sense of humour. Above all Michael has been a loyal and loving husband to me.

One would think it's difficult to live with someone who is so dedicated to his profession, someone who could easily be called a workaholic but no matter how difficult it may seem, the satisfaction of his achievements is great and it is for both of us to share. There is nothing greater in life than sharing each other's happiness and success.

Michael can be very funny too, he loves to tease me and he always knows how to cheer me up with his jokes. He has been and will always be the greatest husband and friend to me!

Vrisseïs Mavrou-Païdoussis

I have been working with Professor Michael Païdoussis for more than 18 years. During this time I have come to know him quite well. His dedication to his profession and to everyone involved in his research group is unique. He is admired and respected by both his colleagues and students. He is generous with his time and experience, always finding time to be helpful to anyone requiring his assistance.

He works excessively hard and has the satisfaction of great achievements to his credit. He values his students/co-workers' opinions and sees them as individuals; being both serious and demanding when need be but at the same time possessing a sense of fairness and loyalty which in turn generates a great deal of respect for him from everyone who knows him. His sense of humour is legendary; especially "socially", when his students and co-workers get to see him as a very sincere, down to earth, unassuming person. He has the gift of making every single one of us feel like part of "the team". Michael is the most appreciative and understanding person I know. He is someone I truly respect and admire and I feel very privileged to be working with him.

Mary Fiorilli

Department of Mechanical Engineering, McGill University

I have known Michael Païdoussis as a friend, colleague and mentor for more than 25 years. One of the reasons why I was so pleased when I got the opportunity to work at McGill was the fact that he was there. I had read several of his papers when I was a graduate student and was very impressed with the clarity, and of course the quality of his work. When I met him, I was struck by his unassuming personality in spite of all his accomplishments.

Michael is well known as a pioneering researcher in the area of fluid–structure interactions. What may not be as well known is how dedicated he is to his research work, and how important a role it plays in his life. He is a man who took

¹Co-organized by the Editors of this issue together with Dr Roger Ohayon of CNAM and Dr Hermann H. Matthies of T.U. Braunschweig. We take this opportunity to thank all 55 authors and co-authors of the 24 papers presented at the special symposium.

early “retirement” so that he can devote more time to his research. He is a real scholar who seeks knowledge for the pleasure of having knowledge. I feel very privileged that I know Michael Païdoussis.

Arun K. Misra

Chairman, Department of Mechanical Engineering, McGill University

As a long time friend and collaborator of Michael, it is a pleasure and honour to be part of this dedication to his 70th birthday. Michael’s contributions to engineering, and in particular to fluid–structure interactions, are far too numerous to list here. But in addition to the obvious ones, such as: being the founding editor of this journal, the author of two books on fluid structure interactions and being the founding and principal organizer of a series of conferences on fluid–structure interactions, Michael has also made significant and long-lasting contributions towards the education of other engineers. Indeed, Michael’s enthusiasm and inspiration has been the impetus for a large number of students and colleagues, who have started their research or engineering careers under Michael’s supervision and have then gone on to have successful careers of their own. Often Michael has continued to mentor these students long after their formal education has finished. As some of you may know, a number of years ago Michael “officially” retired from his position at McGill. However, “retirement”, or at least the usually accepted version of retirement, is probably one of the few things in life that Michael has failed at, and to this day he continues to teach and supervise graduate students at McGill. To conclude, I would like to add my name, to what I am sure will be a long list, in congratulating Michael on his long and distinguished career, and wishing him many more years of active teaching and research at McGill.

Stuart Price

Department of Mechanical Engineering, McGill University

Michael Païdoussis has been my friend and colleague for over 35 years. During this time I have had the singular privilege of witnessing, with ever-growing admiration, his extraordinary achievements not only in research but in all aspects of academic career. The exceptional quality and extent of his research contributions, and his leadership role in the service of his research community are of course well known to the readers of this journal. What might not be apparent, given his unpretentious demeanor, is his sheer joy in the pursuit of curiosity-driven scholarship for its own sake. This joy, I found, underpins the extraordinary care, dedication, and discipline he brought to all facets of his activity, from the formulation of new problems and innovative solution approaches, supervision of students, collaboration with colleagues, to the dissemination of results. Michael’s joy in scholarship, in combination with his other traits of gentle wit, urbane charm, and command of language, distinguish his entire academic and research involvement with a style and flair unmistakably unique to him. No doubt his graduate students, who are now leading authorities in their own right, his collaborators, and colleagues, continue to openly acknowledge his dominant position among their role models.

Therefore, it is with great pleasure and pride I participate in this dedication to Michael’s 70th birthday and wish him even more joy in his continuing research and academic activities here at McGill.

Abdul M. Ahmed

Department of Mechanical Engineering, McGill University

When I first met “Professor” Païdoussis, other than our love for our academic calling, Mike and I shared little more than the polluted waters of the Eastern Mediterranean Sea, and perhaps also the fact that our ancestors fought the Ottoman Empire, although mine attempted it long before the Greeks did.

At the time, I had the privilege of being his first Ph.D. student. I recall being struck by Mike’s good judgment, especially when it came to choosing his grad students. My thesis, however, required little experimentation, which resulted in my spending only a few years under Mike’s tuition. Regrettable for me, but perhaps a blessing for Mike and his entire department.

Who among us would not concur with the value and scope of Mike’s academic and professional achievements; the remarkable contributions to his field that have elevated him to the standing he rightfully enjoys as a global authority in the area of flow-induced vibrations?

As dedicated as he was to the advancement of his field at large, he was equally hard willed, tenacious and perhaps even slightly Machiavellian when it came to improving the conditions of his immediate academic world and that of his students.

Yet there is another side of Mike; the deeper side of a human being who has had a love affair with life since I knew him back in my student days; the personal side of a man whose expertise ranges from applied mechanics to applied mischief.

Ralph Waldo Emerson once said that all life is an experiment. Nearly two centuries later, Mike is the embodiment of that very sentiment. Life is a giant laboratory for Mike, and the experiment, for Mike, lies not so much in having life deal you the right cards, but playing the ones you hold well.

I know you will continue to work, because as everyone knows, you still have quite a few cards up your sleeve—and you shall play them well, as you always have.

Aouni A. Lakis

Department of Mechanical Engineering, École Polytechnique, Montreal

I was very fortunate to be one of Mike's early graduate students in 1968 and it would be terribly wrong to attempt to box in a single paragraph memories and a friendship which started so many years ago. Besides, my English has not significantly improved since the days I struggled through writing my thesis and I would not want to impose upon him yet another titanic editing job!

In any case, thank you Mike for those great McGill years, thank you for the evenings at home with lots of Mediterranean food, Ouzo and accordion, thank you for your divine ability to listen and to care.

I hope that, should you spend the next decades writing books, you consider tackling a Guide to Cyprus. Love to buy that one or be part of the winter review committee!

Michel Hannoyer, Ph.D. 75

Bellator Energy Capital; formerly Hydro-Québec Generation

I met Michael for the first time in 1989 while he was completing his sabbatical leave at Cornell University. There, he got interested in a novel scientific topic: nonlinear dynamics and chaos theory and he decided to combine it with his passion for fluid–structure interaction, and more specifically with the starter of his flourishing carrier and the subject of his Ph.D. thesis: the “Pipe Conveying Fluid”. As a foreign undergraduate student at École Polytechnique de Montréal intrigued by the title of a presentation “Nonlinear and Chaotic Fluidelastic Vibrations of a Pipe Conveying Fluid”, I experienced three phenomena characteristic of nonlinear dynamics that Michael explained and illustrated so convincingly that day:

- (i) sensitivity to initial conditions: *had I not seen the announcement of the presentation, I would have probably not started my thesis at McGill a few months later, and would have probably left Canada forever;*
- (ii) *I entered the basin of attraction of a “strange attractor” named Michael Païdoussis and as it is well known, it is not possible to escape such a talented attractor;*
- (iii) bifurcation: *once you met Michael, life changes!*

Since then, I have noticed that many of his friends, students, and colleagues, experience the same and suffer the same paradigm. Through his kindness, his generosity, his integrity, his openness, and his interest for all kinds of subjects, just to name a few, he has developed a wide network of cooperation and friendship around him. He has not only been dedicated to his work and his family, but also to all the small details that make such a difference in life. For many of us, he has been a true role model and a mentor and I would like to take the opportunity to thank him. I feel so privileged to work with him and to have met him.

Christian Semler

ROI Engineering Inc. and Department of Mechanical Engineering, McGill University

It's a late summer afternoon and the sun is peaking through the window adding a warm feeling to the mesmerizing rows of theses, publications, awards and souvenirs, covering every inch of space in the room. That is how most of us may remember our weekly meetings in Professor Païdoussis' office. Before getting down to business, we exchange a few friendly words: jokes, actuality, or maybe even personal matters. Then we discuss our research progress. We speculate, we answer questions from which emerge new challenges. Need a reference? Within a blink of the eye, it is pulled out of a bookshelf or filing cabinet.

Professor Païdoussis' inspiration and dedication go above and beyond his academic duty. We truly appreciate his generosity in sharing his valuable time and knowledge with us.

Kostantinos Karagiozis

Department of Mechanical Engineering, McGill University

It was in a small restaurant in Karlsruhe, Germany, just off the campus of the University, and the Vorspeise was Kartoffelsuppe. This was the setting for my first, longer conversation with Michael Paidoussis nearly three decades ago. He had just given his Invited Lecture at the IAHR/IUTAM Symposium organized by Ed Naudascher and myself, and I was keen to get to know this fellow who had so masterfully described practical case studies of flow-induced vibrations, superposed on his wide knowledge of the more fundamental aspects of flow-structure interactions. Little did I know at that time what a gift Michael was to become to my life. In the years that followed, many colleagues, representing a range of nationalities around the globe, had the pleasure of collaborating with him. His high standards, steady presence, and perceptive judgment have brought forth the best in our field, through his own remarkable, enduring contributions, his Editorship of JFS, and his organization of meetings of professional societies and international congresses. Michael, I wish you the very best on your 70th, and look forward to the years to come.

Don Rockwell

Department of Mechanical Engineering and Mechanics, Lehigh University

I'm not sure when I first met Michael; it was probably through the Fluids Engineering Division of ASME maybe 30 years ago. It seems as if I've known him for a lot longer than I actually have because I was aware of him through his reputation before actually meeting him. We share similar research interests, but they are different enough that we haven't collaborated on anything except for organizing meetings like the several Fluid–Structure Interaction, etc. Conferences Michael has led and in seeking out good food and wine. I'm looking forward to sharing more of the same of both for many more years to come.

Michael is a very competent and productive individual who always seems to have infinite patience. I've never seen him upset or angry or even agitated. When organizing a conference, you could find yourself haggling with some Division of ASME over a few more sessions and it would be very easy to become perturbed. But not Michael; he's cool about it. Everything always seems to work out when he's at the helm; it's nice to work with a guy who has the confidence to be patient.

Something special that Michael and I have shared on many occasions is good food and good wine. We've dined well in restaurants plain and fancy in more cities than I can remember. The latest, and certainly one of the most memorable, was just after BBVIV4 ended on Santorini Island in June this year. Michael, Vrissiis his lovely and vivacious wife, my wife Pat, and I went to the far northwest end of the Island to an outdoor waterfront seafood restaurant Vrissiis read about on the plane to Santorini. The restaurant was actually closed for the evening because of a journalists' banquet but Vrissiis was not to be denied and, thanks to her diplomatic skills, we had one of the best meals ever. The large grilled fish, only about half an hour out of the water, was delicious. Of course, the local Greek wine and Ouzo also made the evening special but it was the company that made the evening most memorable. I look forward to spending many more such evenings in the company of my good friend and colleague.

Cheers to Michael on the big 7–0.

Charles Dalton

Department of Mechanical Engineering, University of Houston

Congratulations to Prof. Paidoussis for his Koki! In Japan, there is a tradition of celebrating one's 70th birthday as "Koki". This tradition comes from many years ago when living to the age of 70 was very rare. At that time the average life expectancy was 50 years, so for someone to live to the age of 70 was considered quite a task, hence the Koki was celebrated. So it is my great pleasure to congratulate Michael on this occasion.

About 20 years ago, I met someone, who happened to look quite similar to a Greek statue that I had seen in a fine arts textbook from my junior high days, in the corridor in the Macdonald Engineering Building at McGill University. At that time, Michael was supervising many international students and also serving as a chairman of the Mechanical Engineering Department. Although most of his free time was taken up with many management duties, he somehow found the time to invite professors, technicians, secretaries, students and visiting scholars to his penthouse, where we enjoyed delicious Greek food, excellent hospitality and beautiful music which came from Michael's accordion. Since then, I have respected Michael's warm personality and sincere attitude toward research. What I most admire is his deep knowledge for identifying the essential part through model problems. I would also like to take this opportunity to thank Michael for his patience while organizing numerous international conferences and editing JFS over the years. I pray for his health and everlasting success.

Shigehiko Kaneko

Department of Mechanical Engineering, The University of Tokyo

It seems extraordinary to use a Special Issue of the Journal of Fluids and Structures to honour Michael Paidoussis on the occasion of his 70th birthday. But Michael is an extraordinary individual and the Journal he created is a perfect vehicle for such a tribute. Michael's scholarly work has always been rigorous, insightful and a model of clarity in writing. He has worked tirelessly to promote integration and cross-fertilization in the broad field of FSI, with a healthy balance of fundamental and applied research. The enormous success of the series of international symposia he has organized as well as the breadth and standards of excellence achieved by the Journal attest to Michael's vision, influence, and energy. While Michael has immeasurably enriched the FSI world through his scholarship, he has also touched the lives of many people through his humanity. For those of us who have been privileged to know him personally, we know him as a warm, kind and thoughtful friend. For me, this has been about 35 years. I am delighted to have this opportunity to express publicly my admiration for Michael's scholarship, my amazement at his energy, my gratitude for his friendship and my heartfelt best wishes for his 70th birthday and many more.

David S. Weaver

Department of Mechanical Engineering, McMaster University

It was almost 18 years since I have studied with Professor Paidoussis as a visiting scientist at McGill University. He is my first teacher in mechanical engineering, because my major in my university age was nuclear physics and I had studied some vibration related technologies by myself after boarding a company.

The period of my staying with him was not so long, but I often come back to McGill to meet with him even after leaving Montreal, and he usually invites some people to talk when I visit him. It comes from his hospitality and gentleness.

It is common knowledge that he is a famous researcher and he has a lot of power for some academic activities, but from another view he is very cheerful and he prefers to sing a song. We can be aware of this fact when we read his two books, "Fluid-Structure Interactions," which are covered with his own expressions.

This is a good occasion to express our thanks to him, but I believe this 70th anniversary is only one of many such benchmarks, with him being firmly established as a leader of the world of the flow-induced vibration, hopefully for many years.

Tomomichi Nakamura

Department of Mechanical Engineering, Osaka Sangyo University, Japan; formerly with Mitsubishi Heavy Industries, Takasago, Japan

Michael Paidoussis was a hero of mine even before we met. He had done an excellent Ph.D. thesis with Brooke Benjamin that led to several superb journal articles on flutter instabilities of cylindrical tubes in axial flow. From that auspicious beginning, an extraordinarily distinguished career has unfolded. The time has gone by so quickly, clear evidence that Michael and all those who have been privileged to know him have been having fun.

Michael is not only someone who has enjoyed life to the fullest, but enabled and encouraged others to do so as well. When I picture Michael in my mind's eye he is always smiling with a pleasant lilt to his voice asking some penetrating question or offering some good humored, but stimulating comment on research or life.

What a joy and privilege it has been to know Michael from those early days to now. And the very good news is that there is more yet to come. Happy birthday Michael and may there be many more with your family, friends and colleagues. All the best because you are so richly deserving of the best that life has to offer.

Earl Dowell

Department of Mechanical Engineering and Materials Science, Duke University

The first time I met Michael it was February and Montreal had a special atmosphere for me coming from Italy and not used to seeing all white for the snow. Actually I was surprised to find the city very alive and the temperature was not a problem at all. My first approach with the city was very pleasant and it was the beginning for many more visits in the years to come. I was coming to perform a research under the supervision of Michael who was so nice to accept me working on a topic he studied many years before. I was very impressed by his warm welcome with lunch at the charming Faculty Club, where I surprised everybody by not drinking coffee: a bad Italian! Michael stimulated me to perform research in new areas that brought us to develop new common studies in the area of nonlinear dynamics and stability of shells in the years to come. I also had the privilege to be one of the readers of the draft of the 2nd volume of his book "Fluid-Structure Interactions: Slender Structures and Axial Flow". I will never forget summer dinners on Michael's terrace with barbecue and lunches with our friend Aouni. I discovered Michael's knowledge of wines and I supported Italian Brunello di Montalcino and Barolo that now he appreciates very much. Every time I come back to Montreal I feel at home.

Marco Amabili

Department of Industrial Engineering, University of Parma, Italy

Michael is a fantastic colleague, scientist and engineer, whose work is an exemplary source of inspiration, and whose friendship I dearly treasure. The refined elegance of his approach to science and engineering is celebrated in his impressive work, which is brilliantly demonstrated in his recent book, a monumental monograph reflecting a lifetime of clear thought, excellent insights, and deep understanding of fluid–structure interactions. Throughout his work, his witty humor and refined style are always great companions that masterfully make complex concepts and phenomena clear and enjoyable. I am lucky to know Michael personally as well as through his work, and I am fortunate to be able to call him a friend. I hope the readers of this special issue will be inspired also, and should they be in Montreal, will visit McGill University, where they will undoubtedly find Michael, as always, working on an exciting problem, surrounded by students, colleagues, friends, and apprentices like me, who will bear testimony to Michael's invaluable influence in their lives. Happy Birthday Michael!

Bogdan I. Epureanu

Department of Mechanical Engineering, University of Michigan

It is certain that many others of Michael's colleagues and former students would have liked to provide additional testimonials for this Preface. However, we the Editors of this Special Issue asked only those few that we felt most comfortable in asking. As an addendum to this Preface a brief biography of Michael Païdoussis is provided.

This special issue contains 12 peer-reviewed papers dedicated to Michael. The scope of the papers is designed to highlight Michael's scientific interests, which cover almost the entire area of fluid–structure interactions. This is reflected by the broad spectrum of topics chosen by the authors to celebrate his anniversary. We hope the readers will find the papers engaging and enjoyable, and will join us in wishing Michael a very Happy Birthday!

Michael P. Païdoussis was born in Cyprus in 1935, and was educated in the Greek Schools of Egypt, McGill University and the University of Cambridge, receiving his B.Eng. in Mechanical Sciences (with honours) in 1958 and his Ph.D. (Cantab) in Engineering in 1963. He has been Overseas Fellow at GEC in Britain (1958–1960) and Research Officer at Atomic Energy of Canada Ltd (Applied Physics Division, 1963–1967) in Chalk River, Canada. He joined the Department of Mechanical Engineering of McGill University in 1967. Promoted to Professor in 1976, he served as Chairman of the Department from 1977 to 1986, and now is the Thomas Workman Emeritus Professor.

Since 1960, he has worked on various aspects of fluid–structure interactions and flow-induced vibrations and instabilities. He is the author of "*Fluid–Structure Interactions: Slender Structures and Axial Flow*", vol. 1 (1998, Academic Press, London), vol. 2 (2003, Elsevier Academic Press, London). He has published over 170 papers in refereed journals and 110 full papers and 70 extended abstracts in refereed conference proceedings, including several invited and review papers.

He has supervised 36 M.Eng. and 19 Ph.D. theses, as well as 36 undergraduate (Honours Programme) theses.

He has received a British Association Medal for High Distinction in Mechanical Engineering (1958), the George Stephenson Prize from the Institution of Mechanical Engineers (IMEchE), the CANCAM² Prize in 1995, and the ASME 1999 Fluids Engineering Award. He is Fellow of IMechE, ASME,³ CSME,⁴ the American Academy of Mechanics, the Royal Society of Canada (Academy of Science), and the Canadian Academy of Engineering. He has served as Chairman of Division III of IAHR⁵ (1981–87), and has been active in the Applied Science Section of the Royal Society of Canada and various committees of the Pressure Vessels and Piping, Fluids Engineering and Applied Mechanics Divisions of ASME; he was the ASME Calvin Rice Lecturer for 1992. He was elected President of the American Academy of Mechanics in 2005. As of 1986, he has been the Editor of the *Journal of Fluids and Structures* (Academic Press and Elsevier).

Dr Païdoussis was active (1970–1974), with Friends of PAK, in efforts in Montreal towards unseating the Greek colonels' Junta in Greece, and served as President of the Hellenic Graduates' Society in that period. Then, as President of the Hellenic-Canadian Solidarity Committee for Cyprus (1974–1980) and of the Pan-Canadian Solidarity Committee for Cyprus (1978–1983), he served in the on-going worldwide campaign for the withdrawal of the Turkish occupation forces from Cyprus and for its reunification. He was also one of the leaders within the Hellenic

²Canadian Congress of Applied Mechanics.

³American Society of Mechanical Engineers.

⁴Canadian Society for Mechanical Engineering.

⁵International Association for Hydraulic Research.

community in Montreal for the “No” (anti-separatist) campaign in the 1980 Referendum on the constitutional future of Québec. As of 1983 he is serving as Honorary Consul of the Republic of Cyprus in Montreal, and is now the Honorary Consul General. In 1993, he was awarded a Commemorative Medal for the 125th Anniversary of the Confederation of Canada.

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