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Editorial

It is indeed a distinct honor and a privilege to write a foreword to this special volume of the Journal of Scientia Iranica that is dedicated to Professor Goodarz Ahmadi and includes a collection of outstanding scholarly papers contributed by his former students and colleagues. In my professional career that spans over three decades, I have had the great fortune of getting to know many outstanding scholars who have made seminal contributions to various scientific fields. However, for many compelling reasons, Goodarz stands out among all those prominent scholars.

I shall first discuss Professor Ahmadi's qualifications as a truly gifted scholar. I am willing to let the record speak for itself. The sheer breadth and diversity of his accomplishments are exceptional, to say the least. He has certainly earned the respect as an internationally recognized scholar and a pioneer in several fields within the discipline of mechanical engineering. I cannot think of any scholar who has made long-lasting contributions with profound impact to so many different disciplines. Over the span of his remarkable academic career, Professor Ahmadi has made major contributions to challenging fields of research such as aerosol transport, deposition flows, and transport processes in furnaces and boilers; flows and particle transport around buildings; particle deposition in lung inhalation drug delivery; particle and fibers deposition, adhesion, and removal; micro-contamination control; fibrous particle transport, deposition, and removal; cryogenic surface cleaning; gas filtration; spray; chemical-mechanical polishing; nonlinear stochastic mechanics and vibration/seismic control; multi-phase flows; turbulence modeling; computational fluid mechanics; granular flows; nonlinear vibrations; random vibrations; vibration control; aerospace structures; earthquake engineering; and seismic isolation.

Dr. Ahmadi is also an avid experimentalist and an amazingly capable scholar in analytical and computational research. His ability to conceive and initiate meaningful and relevant research programs as well as to carry them out successfully even under very trying

circumstances is beyond any doubt. The large volume of his publications attests to this fact. Considering Professor Ahmadi's work in the area of nonlinear random vibrations, the area of my own expertise in which we have worked together, I consider Dr. Ahmadi's work to be a seminal and pioneering contribution. His work on non-Gaussian analysis of nonlinear systems utilizing Hermite-based series expansion of probability distribution, which resulted from his earlier work on modeling of turbulence, was among the earliest work in the field to address the non-Gaussian analysis of complex nonlinear systems. That work became the basis for a large volume of literature that followed the approach for random vibration of nonlinear systems under non-Gaussian excitation. To date, to the best of my knowledge, his work on turbulence modeling based on Ito-calculus and moment closure approach has remained as a truly classical effort.

The high quality of Dr. Ahmadi's work can also be measured from his over 500 journal papers published in the most prestigious and highest quality archival journals. I cannot think of any scholar who has published so extensively in several disciplines within both solid and fluid mechanics and whose contributions have been so profound. These papers reflect his extraordinary record of research accomplishments. Goodarz's personal attributes, namely innate desire for excellence, superior intellect, immense analytical skills, and abundant energy have been essential in accomplishing such level of excellence in his research work.

I should also indicate that Professor Ahmadi's professional contributions have not been limited to his scholarly work. All those colleagues who have contributed to this special volume and especially his former students are fully aware that Goodarz has been an exemplary teacher. Numerous distinguished teaching awards that Dr. Ahmadi has received are clearly a handful of evidence for his lasting contributions as an outstanding teacher dedicated to excellence in engineering education. I am aware that the relationships

he has developed with his students are of friendliness, accessibility, and mutual respect. He has consistently received the highest student evaluations in his department and his outstanding teaching has been recognized by twice receiving the Distinguished Faculty Award for Excellence in Teaching. Moreover, his excellence in undergraduate advising has been acknowledged by the receipt of Outstanding Advisor Awards. From what I have learned from his colleagues at Clarkson, “Goodarz has burned the midnight oil since arriving at Clarkson...he is extremely generous with his office and personal time.” I refreshed myself by attending some of his lectures on random variations. The way he puts the class at ease and the manner in which he raises students’ enthusiasm and curiosity are truly impressive. His deep understanding of engineering issues and its relevance to mechanical engineering make his lectures most rewarding. With his graduate students, he demands the same exacting standards that he requires of himself. A unique feature of his teaching is involving students and colleagues in the creativity and problem-solving aspects of the work as well as developing team spirit. Through this process, he teaches his students communication skills and sets an example for colleagues. His long list of publications, mostly co-authored with students and colleagues, bears testimony to these facts.

Dr. Ahmadi’s leadership of and contributions to engineering have not been limited to his teaching, research, and service to the profession. He has been indeed an exceptional academic leader and administrator as a department chair and as the dean of engineering, a position in which he served over the past 10 years at Clarkson. Having served as a member of his external advisory board, the Dean’s Leadership Council, I can attest to the fact that the achievements that Clarkson has made over the past decade and the recognition that the university has earned by presently

being considered as a highly valued institution for engineering education, technological innovation, and first-class research are in large part due to untiring work, vision, and diligence of Professor Ahmadi. I should also point out that Dr. Ahmadi’s deep technical knowledge and acumen combined with his ability to integrate positive attributes of individuals in a group, together with his people and communication skills, fairness, integrity, and moral character, have enabled him to accomplish the respect of his peers as a true role model of scholarship and teaching within the community of mechanical engineering and the engineering deans.

My association with Professor Ahmadi goes back to over 34 years ago, when I was finishing my doctoral research in the area of random vibration and I became familiar with the seminal work of Dr. Ahmadi in turbulence modeling using stochastic mechanics approach.

It has been indeed my good fortune and a privilege for having Goodarz’s friendship; observing him as a teacher, researcher, and administrator; and learning from him in all those arenas. We have also collaborated on several projects and a number of publications, and have organized several technical sessions at various conferences. Moreover, we have worked closely in numerous professional capacities and associations. I can attest to the fact that our long and close association has been the most memorable and inspiring experience in my entire professional career that I will always cherish dearly. Thus, I consider this volume as a very small token of our appreciations to this undoubtedly “special” colleague, teacher, mentor, and friend.

Sincerely,

Mohammad Noori,
ASME Fellow and
Professor of Mechanical Engineering