An Academic Journey in Mechanics
Attila Aşkar, Spring 2021

I wanted to write a life story, rather than a curriculum vita. Any life is a voyage where we encounter remarkable people, build professional relations that mature into lifelong friendship. We are all the product of such encounters, with some turning points that shaped our lives.

Hopefully, a life story may perhaps encourage some students and young graduates to consider academia as a meaningful and joyful lifelong occupation. My academic life gave me lifelong joy, meaning and true friendships as extensions of collegial collaborations. I also want to use this occasion to thank several people whose work and lives deeply affected mine.

My story started out with my diploma work in the Spring of 1966 at Istanbul Technical University's Civil Engineering department in the Applied Mechanics option. For this, I always remember Prof. Mustafa Inan my mentor in this project, who was admired by many as a role model. His advice to me, to continue in theoretical areas of engineering, was critical to my career.

My diploma work consisted of the solution of an orthotropic wedge under an applied force at its tip. This was a generalization of the solutions in elasticity theory for homogeneous medium. I used two complex variables without knowing much about complex functions, by imitating the solution for the isotropic media with a single complex variable. It turned out that this problem was solved in the fifties. Regardless, this disappointment turned into a motivation to learn more in the field.

In the fall of 1965, I had applied for doctoral programs in the US. In the following May, I received several offers for graduate scholarships, including a fellowship from Princeton University's Civil Engineering. To my surprise, I discovered a countryman of mine, Ahmet Çakmak who was working in mechanics there. He has been a mentor to me, and a lifelong professional colleague and friend.

I did my doctoral dissertation under Ahmet Çakmak and Peter Lee's joint supervision. There, I studied the relationship between the discrete lattice and continuum representations of solids polarizable under electrical fields. This quest of understanding the discrete and continuum representations formed the core of my whole research career. At Princeton, the rigorous nonlinear continuum physics work of Cemal Eringen also contributed to my overall formation. Cemal Bey became a close senior friend. Hilmi Demiray was also a PhD student during my time: we shared common values and interests, he became a lifelong friend.

Following my doctorate in July 1969, I joined Brown University as a postdoc to work with Jerome Weiner for two years. My association with him expanded my research area through work in Fluid Dynamics analogy of Quantum Mechanics, most suitable to my background in continuum mechanics and understanding of the atomistic description of matter. Professor Weiner held the rare title of "University Professor". I admired him for his academic work and wide culture as a Renaissance scholar. I saw him as a model, although certainly could not become as profound as he was.

Following my three years of graduate studies at Princeton and two years of post-doctoral time at Brown, I returned to Turkey in September 1971. My first work was a researcher at the Applied Math unit of Tubitak. with Erdoğan Şuhubi as its director. My academic interaction with him gave me a chance to increase my knowledge in nonlinear continua, differential equations and numerical methods.

On October 1972, I joined Boğaziçi University where I served for 21 years. A comment by Vedat Yerlici, Dean of Engineering at the time, constituted a turning point in my career. His point was that I could be hired in Engineering, but in the new university I could contribute in a more significant way to the Mathematics department. I accepted this point of view and was the second full time faculty member of the Math department. From that point on, my career straddled between applied mathematics, engineering and mechanics in its continuum and quantum versions. I got to work on solitons and learnt a bit of chaos theory.

Following my promotion to Associate professor at Boğaziçi in the spring of 1975, I fulfilled my compulsory military service in the summer of 1975. I then accepted a Princeton University offer for a two year visiting professorship. The Boğaziçi administration, particularly President Aptullah Kuran, was generous, in granting me a year of absence and extending it to an unpaid leave for a second year.

At Princeton I tried to apply scattering methods of quantum mechanics to elastic waves in view of earthquake problems and resonances of water waves in bays. I also wrote research proposals, one of which was to introduce the finite elements method to the scattering of quantum waves, based on a work I had published a year ago. National Science Foundation of the US basically accepted my proposal, conditional to my teaming up with people whose main field was quantum chemistry.

After talking to several people, I met Herschel Rabitz, a recent Associate Professor like me than. His open mindedness to a method somewhat unused in quantum mechanics was a most refreshing to me. He immediately identified problem areas where my proposal would be both desirable and effective. With him we formed a collegial relationship that turned to a close friendship for life. Reinforced by Ahmet Çakmak's joining the team, NSF supported the revised proposal with a generous three years grant. In the meantime, I was a co-director in an earthquake waves scattering research grant as well.

The two years, from 1975 to 1977 passed quickly. The Dean of Faculty, Professor Lemonick, asked if I would consider staying on, and told me "I know the Turks, you love your country, you go back, get frustrated with the environment and come back." After learning I was interested in returning to Turkey, he made a third time appointment for three years to spend four months each year at Princeton. This association continued for 15 years, while I was based at Boğaziçi University. During this time, I was elected a member of the Turkish Committee for Theoretical and Applied Mechanics, TUMMK, a member of IUTAM. During my 21 years at Boğaziçi, I met many special colleagues and remained friends for life even after my affiliation changed and we didn't see each other as frequently.

During my Boğaziçi years, I also spent a semester of visiting positions in each of University of Paris VI in the Department of Mechanics, Max Planck Institute in Göttingen for Fluid Dynamics and the Royal Institute of Technology (KTH) in Stockholm. These collegial visits started lifelong friendships with Gérard Maugin of CNRS of Paris University and Peter Toennies at Max Planck in Göttingen.

Above, I mainly described my formative years. The rest is really a normal progress in the flow of a an academic life: teaching and engaging in research work with sometimes success, sometimes failures in not being able to solve problems that may have appeared easy, but each time with a lot of hard work.

In June of 1993 Koç University was opening as the second of its kind as privately endowed, although not a completely private university. I was offered the position of Dean of Arts and Sciences, which I accepted. After five years as Dean, in 1998 I became Provost. I had a good collaboration with Seha Tiniç who joined Koç University as its first President, following his retirement from U. Texas at Austin. I learnt a lot from his dedication to scholarship and administrative skills. At his stepping down in 2001, I was appointed President and was on this job for two terms of four years each until the fall of 2009. As expected, following this appointment my research activities dwindled. I consoled myself for contributing to the formation of a new university from scratch.

Through my career, I received recognitions which include the Junior Scientist (Teşvik) and Science (Bilim) awards of the National Research Council (Tubitak), the Information Age Award of the Ministry of Culture of Turkey, was elected a member of New York Academy of Sciences and the National Academy of Sciences of Turkey (TUBA).

My journal publications, a bit over a hundred, can be seen in e. g. Google Scholar or similar media. I wrote a monograph on Lattice dynamical foundation of continuum formulations of solids, based on my graduate courses at Paris University and KTH in Stockholm as well a mathematics textbook on Applied Math based on my courses at Boğaziçi.

Currently, I continue at Koç University as a Professor in the Mathematics Department, teaching two courses in the year. I have two online courses: Multivariable Calculus and Linear Algebra through Coursera, in Turkish with English subtitles. To my surprise that lead to about 20.000 enrollments, some 55 % of these by non-Turkish speakers outside of Turkey. I am in the process of submitting Coursera two more courses, on Single variable calculus and Differential Equations. I am working to revising these Coursera course lectures to books in Turkish and English, at a slower pace than I expected. Finally, I try to wind up a piece of research work that I had postponed over the years.