CHAPTER 7

THE 18TH AND 19TH SUMMER SCHOOLS AT VOLOS AND THESSALONIKI

1. The Port of Volos and a Tribute to John Hadjidemetriou

It was time now for our boat to leave to shores of Patras and head north, towards another region of Greece called Thessaly. Our voyage took us this time to the beautiful city of Volos, one of the major ports of the country, capital of the prefecture of Magnisia and located on the coast of the picturesque Pagasitikos Gulf, around which one can find some of the most popular tourist attractions of the Greece.

After the end of the Olympic Conference-17th Summer School, we were invited by colleagues of the University of Thessaly at Volos to hold the 18th Summer School of Nonlinear Dynamics and Complexity" in their city. The invitation came from Nikolaos Vlachos, Professor of the Department of Mechanical Engineering and Director of the Fluid Mechanics Lab of the University, who had heard of our previous escapades and thought it was a good idea not to leave Volos outside our itinerary.

"I heard what you guys are doing," he told me on the phone one nice autumn day of 2004, "and I would like to bring several colleagues and young students of mine on the boat! There is a lot we are doing at our University that is related to nonlinear dynamics and complexity." "That's great I replied! I am sure we can manage that, provided you can help us with the organization!" "We surely will", he replied, "on one condition!" "What is that?" I asked. "That we are going to invite outstanding speakers from Greece and abroad and we will publish at the end a nice volume of proceedings!" "Agreed!" was my immediate reply.

Figure 51: Pictures of the city of Volos. Left: The western part of the port. Right: The eastern part of the port. At its foremost point stands the "Papastratos" building of the University, where the activities of the 18th Summer School took place.

Not only were going to do everything Nikos asked, we also intended to enrich this new adventure with a tribute to one of the most important "older" sailors on our trip, Professor John Hadjidemetriou, of whom we have already spoken several time in these memoirs, and who was turning 67 years old at that time and retiring from the University of Thessaloniki (see Figure 52).

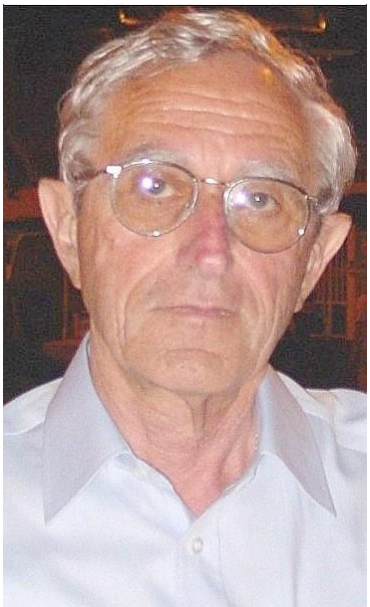

Figure 52: John Hadjidemetriou (1937 – 2013) was one of the strongest proponents and vocal supporters of our Summer Schools, being present in almost all of them with his crystal clear lectures on Hamiltonian and Celestial Mechanics, since the start of our voyage in 1987.

When the other "older" sailors heard the news, the response was enthusiastic: Volos! What a great idea! We would all have the chance to visit some of the wonderful nearby beaches and visit some of the neighboring picturesque villages on the beautiful Pilion mountain whose slopes descend smoothly down to the city. So, we all started looking for acclaimed scientists to come from abroad, experienced Greek speakers to give the necessary introductory lectures and, of course, as always… money to cover some of our expenses!

Nikos Vlachos was very enthusiastic and worked extremely hard to make this Summer School a success. After all, the adventures and successes of our voyage so far, were becoming well – known around the country! More importantly, he was not alone. He, and a number of other faculty members like Dionyssis Vavougios (Department of Education), Theodore Karakasidis (Department of Civil Engineering) and Vassilios Bontozoglou (Department of Mechanical and Industrial Engineering) convinced the Rector of the University that this was an important even that had to be supported as generously as possible.

Thus, we were allowed to use at no cost the excellent facilities of the "Papastratos" building (Figure 51, right), which belonged to the University since 1985 and included a wonderful auditorium on the top floor equipped with the most modern audiovisual commodities. At the ground floor of the building, which houses the administration offices of the University, there is a large open space, where the posters of the young sailors would be exhibited.

So, everybody got to work. First, we appealed for funding to all the authorities we could think of besides the University of Thessaly. There were letters written to the Ministry of Education, the Ministry of Foreign Affairs and the Ministry of Cultural Affairs, who responded positively, and provided considerable support.

Thus, the 18th Summer School got under way for 12 days, 18 – 30 of July 2005. As usual, some of our speakers were eminent scientists, who lived abroad and would be in the country at the time for their summer vacation: There was Vassilios Basios (Université Libre de Bruxelles) who spoke on the "Statistical Mechanics of Hamiltonian Systems with Few Interacting Particles" and Rudolf Dvorak (University of Vienna) who lectured on "The Role of Resonances in Planetary Systems". We also heard Leonidas Iasemidis (University of Arizona) speak on "Simulation of Electrical Dynamics of the Brain and the Problem of Epilepsy", and Laura Cimponeriu (University of Berlin, Potsdam) on "Synchronization Phenomena in the Dynamics of Brain Signals".

Many of the main lecturers from Greek universities were already well known from previous Summer Schools, but there were also several relative newcomers: These included Nikos Vogglis, Panos Patsis, Haris Skokos and Christos Efthymiopoulos from the Center of Astronomy and Applied Mathematics of the Academy of Athens (directed by Academician George Contopoulos), who lectured on the role of order and chaos in multi-dimensional gravitational systems. Ko van der Weele, recently elected Associate Professor of Mathematics at the University of Patras, spoke on "Bifurcation Theory and Complexity in the Physics of Granular Matter", while Vassilios Constantoudis (Athens Research Center "Demokritos") talked about the nonlinear dynamics of using lasers to achieve molecular photo-ionization. Finally, Yannis Kyprianidis and Yannis Stouboulos from the University of Thessaloniki addressed the problem of the dynamics of nonlinear electrical circuits.

Among the young sailors who presented interesting short talks at Volos were Panayotis Katsaloulis (University of Athens) on "Statistical methods for the Analysis of DNA Sequences in Human Chromosomes", Dimitra Hadjiavgousti (University of Thessaloniki) on "The Alee Phenomenon in Predator – Prey Models", and Yannis Petalas (University of Patras) on "Methods of Computational Intelligence with Applications to the Study of nonlinear Maps". Finally, we had the pleasure to hear professor Elias Aifantis of the University of Thessaloniki speak about his famous "Gradient Theory Morphogenesis, Deformation and Nanomechanics", followed by his younger colleagues Abraham Konstantinidis on "Fractals and Wavelets in Deformation and Breaking" and Michael Avlonitis on "Stochastic Processes in Gradient Theory".

Finally, it is important to mention the contributions of the "local talent" of the Polytechnic Schools of the University of Thessaly at Volos: First of all, the primary organizer of the 18th School, Professor Nikos Vlachos gave a comprehensive talk on the work of his group on "Turbulence and Organized Structures in Fluid Flow", followed by Assist. Prof. Theodore Karakasidis who spoke on "Linear and Nonlinear Methods of Time Series Analysis". Next, Professor Michael Vlahogiannis, of the Technical Polytechnic Institute of Volos lectured on "Parametric Excitation of Film Flow Through Periodic Media", while Professor Vassilios Bontozoglou spoke on "Dynamics of Non-Conservative Media with Scattering and Dispersion in Laminar Film Flow" and Assist. Prof. Nikos Pelekasis on "Computational and Theoretical Stability Analysis of Boundary Layer Gas Interacting with a Solid Body or Liquid Film".

One of the most interesting activities of our Summer School at Volos was the formation of Work Groups of young participants, meeting periodically to discuss various areas of Nonlinear Dynamics and Complexity, under the guidance of some of the "older" sailors, who were more knowledgeable in the corresponding topics. These groups were:

1) Group A on “Hamiltonian Mechanics and Applications” (Coordinators: J. Hadjidemetriou, S. Ichtiaroglou and R. Dvorak)

2) Group B on “Mathematical Analysis of Dynamical Systems” (Coordinators: A. Bountis and Sp. Pnevmatikos)

3) Group C on “Nonlinear Problems of Technological Sciences” (Coordinators: K. Hizanidis and V. Bontozoglou)

4) Group D on “Nonlinear Physics” (Coordinators: L. Vlahos, A. Bountis, K. Hizanidis, and V. Bontozoglou)

5) Group E: “Nonlinear and Chaotic Time Series Analysis (Coordinators: D. Kugiumtzis and Th. Karakasidis)

And, of course, we enjoyed our traditional recreational events: In the evening of July 21, the Mayor of Volos offered us all dinner at a restaurant by the sea, close to the port, while on Sunday, July 24, we went on a fantastic bus tour of Mount Pilion, complete with visiting many of its picturesque villages and swimming at its beaches.

It all ended with a very nice 9th volume of proceedings of our series “Order and Chaos”, edited by the University of Thessaly, in July 1996, under the supervision of Professor Nikolaos Vlachos and myself. I would like to recall one paragraph from our Prologue of this volume which goes as follows:

“Η πραγματική *παιδεία* και το βαθύτερο νόημα της *εκπαίδευσης* είναι πολύ σοβαρά ζητήματα για να τα εμπιστευθούμε αποκλειστικά στις διαδικασίες των επίσημων φορέων (Γυμνάσια, Λύκεια, Πανεπιστήμια και Τεχνολογικά Ιδρύματα), που ισχυρίζονται ότι τα θεραπεύουν. Επιστήμη δεν σημαίνει απομνημόνευση και άκριτη αποδοχή πληροφοριών «μουσειακού» περιεχομένου που συχνά εκπέμπονται από «καθέδρας σοφούς», με μόνο σκοπό την ακριβή αναπαραγωγή τους την περίοδο των εξετάσεων. Επιστήμη σημαίνει προβληματισμός, αμφισβήτηση, συζήτηση και διαρκής μελέτη, ώστε να επιτευχθεί ο απώτερος στόχος της κατάκτησης της *αληθινής γνώσης*, αυτής που *μορφώνει* τον άνθρωπο και τον καθιστά ικανό να ανακαλύπτει *καινούργια γνώση* και να αντιμετωπίζει αποτελεσματικά ζωτικά προβλήματα της πραγματικότητας που τον περιβάλλει.”

This is the kind of knowledge that we wish to cultivate in our Summer School – Conferences on “Nonlinear Dynamics and Complexity”. And as was obvious already at our 18th such adventure at Volos, in 2005, our voyage was achieving its goals, much as it continues to do to this very day.

I would like to finish this account of the 18th stop of our journey with a few words about Professor John Hadjidemetriou, to whom the 2005 Volos Summer School – Conference was devoted in honor of his retirement on his 67th birthday.

From our 18 stops (until that time) John had missed only one! He was always among the first to arrive and the last to depart. His lectures were always popular because of their clarity and deep educational content. Together with the articles he wrote for our volumes of proceedings, they helped hundreds of our young sailors navigate themselves in the fascinating waters of Hamiltonian Mechanics, stability of periodic orbits, symplectic maps and resonances, as well as their many applications in the fields of Celestial Mechanics and Astronomy.

John Hadjidemetriou began his career by obtaining his degree of Mathematics from the University of Thessaloniki in 1959. Soon he realized, however, that his real scientific interests lay with Physics

and especially Astronomy. So, he leaves for England and studies Physics at the University of Manchester where he obtains his Ph.D. degree in 1965. He has already become fascinated by the dynamics of celestial bodies, thus the topic of his dissertation and his first papers in the highly acclaimed Journal "Icarus" concern the study of solutions of the gravitational problem of two bodies with variable mass.

John spends several years studying binary star systems and publishes important papers in journals like Zeitschrift für Astrofysik, Journal de Mécanique, Astronomical Journal και Astrophysics and Space Science. What he was interested in was the exchange of mass between the two stars due to their gravitational interaction.

At that time he begins to collaborate with George Contopoulos, who was then Professor at the Department of Physics of the University of Thessaloniki Professor. A true friendship develops between them, as Contopoulos suggests that they study together individual orbits of planetary systems, especially periodic solutions and their *characteristics*, as the total energy is varied. Thus, John and Contopoulos write a common paper on this topic, which is published in the famous Astronomical Journal in 1968. In 1970, he is elected Professor of Mechanics at the University of Thessaloniki and begins his own research on questions of stability and continuation of families of periodic solutions in the notorious gravitational 3 – body problem.

This area was to become one of the main attractions for John and his students, who begin to develop new analytical approaches for understanding the so called variational equations that describe small perturbations of periodic orbits and hold the key to the mystery of their stability properties. They formulate in the 1970s a systematic program for studying analytically and numerically the problem of *continuation* of periodic solutions of an N-body problem as some parameters of the system are varied.

As computers start to arrive at the University and become popular in analyzing questions that are analytically intractable, John and his group publish important papers such as «The Continuation of Periodic Orbits from the Restricted to the General 3 – Body Problem» and «Families of Periodic Orbits in the N-Body Problem», in the highly acclaimed journal of Celestial Mechanics, 1975 – 1977. In these, they are able to study in detail the *bifurcations* of periodic solutions and apply their results to the realistic dynamics of planetary orbits as well as satellite orbits around planets of the solar system.

We are now in the decade of the 1980's, when Hadjidemetriou realizes the importance of resonances and studies the dynamics of *asteroids* in the space between Jupiter and the inner planets of the solar system, together with Simos Ichtiaroglou, who completes his Ph.D. under John's supervision in 1984. It is then that he realizes the importance of *symplectic mappings* in tracking orbits of celestial bodies, as they cross different planes in the phase space of the system, at distinct instances in time.

Next, John publishes from 1986 to the mid-1990s a series of papers on the applications of mappings to the problem of resonances in asteroidal motion, which became widely known and were referenced by many other researchers. One of them was the American Astronomer Jack Wisdom in his famous paper that explained the presence of "gaps" in the asteroidal belt. More precisely, Wisdom used mappings to demonstrate that due to the presence of chaotic dynamics, orbits of great eccentricity arise near *unstable resonances* leading many asteroids to cross the path of major planets and thus be removed from the asteroidal belt.

At the dawn of the new century, John began looking for new problems. He became fascinated by the discovery of the so-called "exo-solar" planetary systems, of which, at 2005, nearly 150 had been discovered (by September 2020 there were more than 3000). As is well-known, this field became extremely popular in the years that followed, mainly because of the possibility that in one of tehse systems we might find planets occupying a so-called "habitable zone", where conditions favorable to the presence of life might be found. In fact, one of our frequently invited speakers, Professor Rudolph Dvorak (University of Vienna), has been one of the most active astronomers studying such systems and their celestial dynamics.

As John explained in his lecture at our 18th stop at Volos, published in our 9th volume of proceedings, such exo-solar systems are extremely interesting. Due to the great eccentricity of most planets in these systems (a factor that precludes the presence of life), one finds orbits of great complexity. These are characterized by new types of resonances, whose stability Professor Hadjidemtriou and his group studied for many years. They obtained many interesting results which, when verified in observations, will demonstrate the great potential of Nonlinear Dynamics in addressing real life problems.

But John's work was not limited to teaching and doing research at the University of Thessaloniki. He was one of the founders of the European Astronomical Union, Vice-President of the Committee of Celestial Mechanics and Dynamical Astronomy of the International Astronomical Union (1997 – 2000) and President of that Committee, from 2000 to 2003. He was Associate Editor of the journal of Celestial Mechanics and Dynamical Astronomy since 1993 and participated in many European and Greek Research Projects supporting his work and that of his group.

He was a great teacher and friend, and if all this is written now in the past tense, it is because John Hadjidemetriou passed away in March 2013 at the age of 76. He was still quite young at heart and spirit and we will have more to say in this book about his contributions to our Summer School-Conferences from 2006 until the time of his passing.

2. The 19th event at Thessaloniki: The engineers are coming!

The 19th Summer School - Conference would not have taken place at Thessaloniki had it not been for the great efforts of Professor Elias Aifantis of the Department of Mechanical Engineering, who insisted that our voyage stop, in the summer of 2006, at the Polytechnic School of the University of Thessaloniki (see Figure 53). Elias had attended some of our first events in the late 1980's and had often expressed his wish to organize one of these Summer School – Conferences at his home university. Being a mechanical engineer with important contributions to the fields of elasticity, plasticity and continuum mechanics, he appreciated nonlinear phenomena, but did not feel that the areas of nonlinear dynamics and complexity were very relevant to his fields of research.

At the end of the 20th century, however, and the beginning of the 21st, he discovered that some of the problems of deformation and fracture he was studying involved the understanding of complex geometrical structures described by fractal geometry. Given also his ongoing interests in dynamical phenomena occurring in elastic materials, he decided that it was high time some of these topics be included in one of our events.

Figure 53: Elias Aifantis, Professor of the Polytechnic School of the University of Thessaloniki was the main organizer of the 19th Summer School – Conference on "Nonlinear Dynamics and Complexity", July 10 – 22, 2006.

Needless to say, of course, that I and the other "older" sailors of our ship, were very happy to accept his proposal that our voyage stop again at Thessaloniki in the summer of 2006, hosted this time by the Polytechnic School and, in particular, by Professor Elias Aifantis and his group at the Laboratory of Mechanics and Materials.

Elias was very successful in convincing his School to grant us the availability of its very spacious and modernly equipped amphitheater at the ground floor of the School's main building, conveniently located in the same campus as the rest of the University of Thessaloniki (see Figure 54). The main funding of our event, of course, would have to come, as usual, from the contributions of several government sources to which we dutifully appealed: the Ministry of Education (Department of Conferences), the Ministry of Culture (Department of Conferences) and the Ministry of Foreign Affairs (Secretariat of Hellenic Diaspora). As usual, each of these contributions was small, but put together they were able at least to cover the living expenses of our invited speakers.

Furthermore, we were fortunate that, at the time of our event, another Conference was taking place at Thessaloniki, organized by the Physics Department of the University, on the fields of Nanoscience and Nanotechnology. Thus, we had the opportunity to "share" some of its invited speakers, who were kind enough to give a lecture at our Summer School – Conference as well. They were: Thomas Tsakalakos (Rutgers University, New Jersey), speaking on "Biomedicine at the Nanoscale", Kyriakos Komvopoulos (University of California at Berkeley) who lectured on "Nanomechanics: Applications in Nanoengineering and Nanotechnology", Efthymios Kaxiras (Harvard University) whose topic was "Simulations of Complex Materials Across Multiple Scales" and Xanthippi Markencoff (University of California at San Diego) whose talk was entitled "Elasticity and Dislocations at the Nanoscale".

Figure 54: Top: The secretarial desk (left) and the first meeting at the entrance of the Amphitheater of Bountis with Ichtiaroglou and Dvorak (right). Below: Ko van der Weele lecturing in the Amphitheater (left) and answering questions after his lecture (right).

Since Elias was the main organizer of our Summer School – Conference there were many talks focusing on his fields of interest: Pan Kakavas (Technological Educational Institute of Western Greece) spoke on "Nonlinear Elasticity and Applications in Civil and Bio Systems", Roberto Ballarini (today at University of Houston) on "Biological Structures Mitigating Catastrophic Fracture through Various Strategies", while Elias lectured on "Nanomechanics: Theory and Experiment". We also heard lectures by R. J. Hellmig (University of Clausthal, Germany) on "Composite Models for Nonlinear Stress-Strain Curves in Nanomaterials", Florian Spieckermann (University of Vienna) on "Composite Models for Nonlinear Stress-Strain Curves in Semi-crystalline Polymers", and Avraam Konstantinidis (Polytechnic Scool, University Thessaloniki) on "Fractals, Wavelets and Size Effects in Deformation and Fracture".

To be sure, many of our "usual suspects" (i.e. frequent lecturers at our events) were also present at Thessaloniki in 2006, giving introductory lectures on their favorite topics. I will only mention a few, to avoid repetition: George Contopoulos from the Academy of Athens, the local talents of the Physics Department of Thessaloniki, Professors Hadjidemetriou, Simos Ichtiaroglou, George Voyatzis, Loukas Vlahos and Dimitris Kugiumtzis, the University of Patras Professors J. P. van der Weele and Tassos Bountis, Haris Skokos (then at Paris working with Jacques Laskar), Vassilios Basios (Free

University of Brussels), Marko Robnik (University of Maribor), Rudolph Dvorak (University of Vienna) and Peter Leach (Durban, South Africa).

Clearly our youngest sailors appreciated these introductory lectures greatly, since they had never heard them before. On the other hand, the "not so young" sailors had the opportunity to hear again some fundamental concepts and thus understand them better. We also had, as always, several new lecturers, who had never been to earlier stops of the voyage.

Among them were Theodore Theodorou (then at National Research Center of Athens, "Demokritos") speaking about "Hierarchical Modelling in Polymers", Nikos Flytzanis (University of Crete, Heraklion) presenting "Nonlinearity in Dislocations and Josephson Junctions", Panos Panayotaros (IIMAS, Universidad Autonoma Mexico City) talking about "Localized Periodic and Quasiperiodic Solutions in the Discrete NLS with Diffraction Management", Christof Jung (Center for Scientific Research, Cuernavaca, Mexico) lecturing on "Classical Chaotic Scattering" and Armando Bazzani (University of Bologna) on "Applications of Complexity Science to Urban Systems".

In addition, our 19th Summer School - Conference had two unusual features that were not common in most of our events. The first one was a fascinating panel discussion on "Science, Technology and Social Interactions" that occupied all the morning session of Monday July 17. It was chaired by Professor of Philosophy and History of Science of the University of Athens Andreas Dimitropoulos, whose topic was "Modern Democracy, Technology and Referendum". He was followed by Dr. Nikos Lygeros, whom we met already at our 13th stop at Chalkida, who lectured on his new specialty in "Complexity in International Diplomacy". The session closed with a highly provocative and controversial talk by Kostas Zouraris (law degree from the University of Thessaloniki, M. Sc. in Political Science from the University of Paris VIII, politician and later Member of the Greek parliament), who spoke on "Complexity and Uncertainty in Modern Societies and the Media".

The second interesting surprise that awaited our 19th Summer School – Conference participants was of cultural nature. Elias had made all the arrangements to secure tickets for all of us to attend, at the Macedonian Museum of Modern Art of Thessaloniki two evening performances: The first one was an hour of singing by the famous Greek singer Savina Yannatou and her group and the second a theatrical presentation of Plato's "Apology of Socrates", translated in English by Elena Andreadi, performed by Emmy Award Winning Actor Yannis Simonidis and directed by Broadway Veteran Director Loukas Skipitaris, with costumes designed by Oscar winning designer Theoni Aldredge! It was a great treat and all our sailors young and old, together with all our guests were highly entertained.

Of course, our stop at Thessaloniki could not be complete without its Sunday excursion to the sea!

Figure 55: Top row: Swimming at a beach of Chalkidiki, on Sunday July 16, was accompanied by appropriate athletic activities. Middle row: Swimming and other beach recreations were followed by lunch at a restaurant a few steps away from the water. Bottom row: Upon returning to Thessaloniki in the evening, we embarked on our favorite musical activities and philosophical discussions.

So, according to our Program, on Sunday July 16, we hired a bus and embarked on a daily trip to the beautiful Chalkidiki peninsula, to spend the whole day at a beach two hours away from Thessaloniki.

As is evident in the photos of Figure 55, we had a great time. First, there was swimming and athletic interactions at the beach, followed by an outdoors lunch, partly covered by the Summer School, at the same location. Then, in the evening, when we returned to Thessaloniki, the elder sailors got together at a seaside restaurant and engaged in musical and singing activities, as well as deep mathematical discussions, if I can judge from the seriousness with which Spyros Pnevmatikos and Simos Ichtiaroglou are talking in the last photo of Figure 55.

CHAPTER 8

THE 20TH AND 21ST SUMMER SCHOOLS AT PATRAS AND ATHENS

1. 19 – 29 July 2007, at Patras: Simos Ichtiaroglou in Memoriam

In the academic year 2006 – 2007, after the exciting and unusual 19th Summer School – Conference of Thessaloniki, we were all getting ready to "touch base" again and organize the 20th stop of our journey at the familiar coast of Patras. Everything was progressing as usual with contacting our list of speakers and composing the lecture program in the Spring of 2007, when we heard the painful and shocking news that Simos Ichtiaroglou had died quietly in his sleep at his home in Thessaloniki. He was just 57 years old (see Figure 56).

Figure 56: Simos Ichtiaroglou (1950 – 2007), Associate Professor of the Physics Department of the University of Thessaloniki, one of the first and most beloved sailors of our journey, passed away, just weeks before the 20th Summer School – Conference was about to begin.

As the reader recalls from previous chapters, Simos was one of the most beloved and respected "old" sailors of our journey. He had been on the ship from the very beginning and had not missed a single one of our adventures for 20 years. His lectures on the mathematical theory of classical mechanics, Hamiltonian systems, periodic orbits, perturbation theory and chaos were extremely popular because they were always clear and very well presented.

But, beyond that, what would we have done on the buses returning from our excursions, or during our after-dinner sessions, if Simos were not there with his guitar? As has been obvious in many photos of this book, Simos was the "soul" of our singing activities. He had a great repertoire and was always able to adapt his playing to the singer's voice, in any one of the many Greek (and some foreign) popular songs, we requested.

Simos obtained his Ph.D. under the guidance of Professor John Hadjidemetriou in 1982, at the Physics Department of the University of Thessaloniki and became Lecturer until 1984. He was then elected Assistant Professor of the Department until 1991, when he was promoted to Associate Professor.

Simos taught for many years at Thessaloniki the courses of Theoretical Mechanics, Continuum Mechanics, Differential Equations, Nonlinear Dynamics, and Dynamical Systems and Chaos. He supervised the Ph.D. theses of 3 protagonists of many of our Summer Schools: George Voyatzis, Efi Meletlidou, and Vassilis Koukoulogiannis, working on topics of integrability and chaos in multi – degree – of freedom Hamiltonian systems. Later, he turned to other research directions and successfully guided the dissertations of Despoina Hadjiavgousti and Despoina Voyatzi on nonlinear dynamical systems arising in biology.

Simos was highly active in taking part in Erasmus programs, under the auspices of which he gave a series of graduate level lectures at the University of Amsterdam and the Free University of Brussels (ULB). He participated extensively in European research projects, within the "Science" and "Human Capital and Mobility" frameworks, as well as Greek projects on Astronomy and Astrophysics, within the PENED, HERACLITOS and PYTHAGORAS programs.

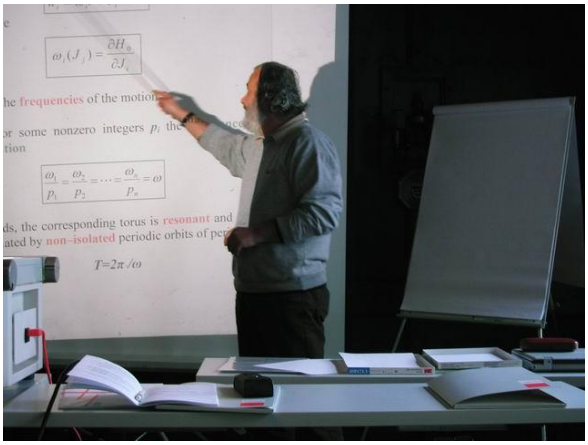

Figure 57: Simos Ichtiaroglou, teaching at one of our Summer Schools (left) and accompanying with his guitar some of the students on the bus trip returning from one of our Sunday excursions (right).

For all of us, older and younger sailors alike, Simos was an integral part of our lives, an invaluable teacher and friend, at all the first 19 stops of our journey! We miss him very much, but at least we have his published lectures in many volumes of our 'Order and Chaos" Proceedings to keep us company in his absence.

Let us now recall the presentations given at our 20th Summer School – Conference at Patras, starting with the first week: On Thursday, July 19, we heard John Hadjidemetriou (Thessaloniki) on "The Three-Body Problem: Application to the Extrasolar Planetary Systems" and Rudolph Dvorak (Vienna) posing the question: "Are There Habitable Zones in the Known Extrasolar Planetary Systems?" They were followed by Panos Patsis (Astronomy Institute, Academy of Athens) presenting "The Flow of Material Through the Arms in Normal and Barred Galaxies", and Haris Skokos (still at Paris with J. Laskar) speaking on "Beam Stability in Modern Light Sources via Frequency Map Analysis".

On Friday, July 20, there were lectures by Vassilios Basios (Brussels) on “Crystallization and Self-organization in Complex Matter”, George Tsironis (Heraklion) on “Nonlinear Localization in Biomolecules and Metamaterials” and George Kalosakas (Patras) on “Nonlinear Base Opening Dynamics in DNA. Then, at the end of the morning session, we were treated to an excellent talk by an outstanding American scientist, whom we had invited for the first time: Professor Kenneth Showalter (University of West Virginia), who spoke on a fascinating subject on which he was already famous: “Controlling Spatiotemporal Dynamics in Chemical Systems”. Kenneth was the first to verify experimentally in chemical systems the emergence of certain highly complex phenomena called “chimera patterns”, of which we will have more to say at future stops of our journey.

In the evening of Friday, we heard lectures by Christos Efthymiopoulos (Astronomy Institute Academy of Athens) on “The Transition to Chaos in the Pilot Wave Approach to Quantum Mechanics”, and Professor of Chemistry Stavros Farantos (Heraklion) on “Nonlinear Vibrational Normal Modes of Biomolecules”. On Saturday, we had the pleasure to hear Dr. Christof Jung (Research Center of Cuernavaca, Mexico), who was with us also at our 19th stop at Thessaloniki, speaking this time about “Molecular Vibrations: From the Spectrum to the Motion of the Atoms”. He was followed by Ko van der Weele (Patras) on “Phase Transitions in Vibrated Granular Matter” and Elias Aifantis (main organizer of the 19th event at Thessaloniki) on his favorite topic: “Gradient Theory, Instabilities and Pattern Formation: From Terrascales to Nanoscales”.

Next day it was Sunday and hence, finally, time to relax! Of course, everyone was free to enjoy the beaches of Patras, but we also had something more interesting and adventurous to offer, especially for our foreign guests. Thus, I called again our favourite driver Kostas (remember our trips during the “Olympia” Conference of 2004?) and asked for his biggest and more comfortable tourist bus. He was happy to oblige and so we managed to fit in one day two important activities: A visit to the archaeological site of Olympia, 10 a.m. – 1 p.m. followed by a trip to the long and sandy Kourouta beach, before returning to Patras, 10 p.m. in the evening.

The second week of our 20th Summer School Conference promised and delivered some fascinating experiences as well. Let us start with the scientific ones:

On Monday morning, July 23, many of our old, familiar Greek sailors were present speaking about their latest discoveries, like Loukas Vlahos (Thessaloniki) on “Theory and Applications of Regular and Anomalous Diffusion” and Kyriakos Hitzanidis (Athens Polytechnic) on “Hamiltonian and Lagrangian Methods for Space-Time Transformations in Photonics, Bose-Einstein Condensates and Liquid Crystals”. In the evening, we heard Nikos Efremidis (Heraclion) speak on “Optical Lattice Solitons” and Yannis Kominis (Athens Polytechnic) on “Canonical Perturbation Theory and Lie Transforms: Application to Nonlinear Resonant Wave-Particle Interaction”, before we went to admire the posters put up by the young sailors.

On Tuesday, July 24, we heard Nikos Flytzanis (Heraklion) speaking on “Nonlinear Phenomena in Josephson Junction Devices” and Carlo Mari (Pescara, Italy) explaining a topic of great practical interest in his talk on “Modeling and Hedging Electricity Price Risk in Competitive Markets”. They were followed by two great speakers familiar to us from earlier events: They were the outstanding Physicists Sergej Flach (Max Planck Institute, Dresden) speaking on “The Fermi Pasta Ulam Paradox: Problems, Myths and Solutions” and Constantino Tsallis (Brazilian Center of Research, Rio de Janeiro) explaining some aspects of his famous theory of Non-extensive Thermodynamics in a talk entitled “Extensivity vs. Additivity of the Entropy and Generalized Central Limit Theorems in

the Presence of Strong Interactions". In fact, we will meet again Sergej and Constantino, describing their fascinating results, at future stops of our voyage.

Do you remember Peter Leach from Durban, South Africa? He was present at our 16th Summer School at Chalkida and the 19th at Thessaloniki. Peter had fallen in love with Greece and became so thrilled with our events that he had decided to attend as many as he could. In fact, he had started to write papers with some of our young sailors on topics related to his presentation at Patras in 2007: "Second-order, Third-order and Nth-order Ordinary Differential Equations: How the Exceptional Became Unexceptional"!

After Peter, we also heard interesting lectures in topics of pure mathematics like "Integrability of Nonlinear Partial Difference Equations and Yang-Baxter Maps" by Vassilis Papageorgiou (Patras), and more applied mathematics problems like "Two Cases of Continuation of Periodic Orbits: The Magnetization Problem and the Coupling of Two Oscillators", by Efi Meletlidou (Thessaloniki) and "Travelling Waves in 1 – and 2 – Dimensional Lattices", by Vassilios Rothos, also from the University of Thessaloniki.

Then came the evening of Wednesday, July 25, and the second fascinating experience of our meeting, this time of purely cultural nature: As the reader recalls, we had already ventured to organize, at earlier stops of our voyage, evening cultural events, which were quite appreciated by our participants. For example, in the "Olympian" event of 2004, we had included an evening performance by the Patras Choir of the Church of Pantanassa, "Georgios Triantis", singing mostly folk songs from Western Greece and some foreign ballads together with religious hymns. Then one evening of the Thessaloniki event of 2006 was devoted to listening to the famous lady Greek singer Savina Yannatou and her group and watched a theatrical presentation of Plato's "Apology of Socrates".

Figure 58: Scenes from the performance of the Music Group "Polytropon", at the small Amphitheater of the University of Patras Cultural and Conference Center. Left: Athina Bounti singing a song by Manos Hadjidakis. Right: The group plays music written by Mikis Theodorakis for the film "Zorba the Greek", while a scene from the movie is shown on the screen behind them.

So, what did we have in store for our meeting this time?

Well, I had discovered in Patras a wonderful group of musically talented students, called "Polytropon", led by their High School teacher, Mr. Panagiotis Andriopoulos, who were very happy to perform for the benefit of our participants (see Figure 58). Thus, after the scientific events of the day, on July 25, we gathered at 8:00 p.m. in the Small Amphitheater of the University of Patras

Conference Center and enjoyed listening to musical themes and songs by Manos Hadjidakis and Mikis Theodorakis, made famous from international movies like AMERICA AMERICA (1963), directed by Elia Kazan, TOP KAPI (1964), NEVER ON SUNDAY (1960) and PHAEDRA (1962), directed by Jules Dassin, Z (1968) directed by Costa Gavras, and ZORBA THE GREEK (1964), directed by Michael Kakogiannis.

It was a wonderful experience that everyone, especially our foreign guests, enjoyed very much. It was a part of our culture that was not as familiar to them as e.g. the history and archeological sites of ancient Greece. Of course, as was customary at our events, this wonderful cultural "nourishment" was followed by the "traditional" Summer School – Conference dinner, at a seaside restaurant outside the city of Patras, that lasted up to midnight.

Despite that night's late retirement, we were all (or almost all) ready to start our session on the next day at the usual time of 9:30 a.m.! The day began with speakers familiar from earlier events, like Tassos Bezerianos (Patras) on "Genomic, Proteomic and Electrical Brain Signals Integration in Multiscale Functional Monitoring", Michael Vrahatis (Patras) on "Computational Intelligence: Theory and Applications" and Laura Cimponeriu (Potsdam) on "Phase Models of Coupled Oscillators From Experimental Data".

Next, we were privileged to hear a famous mathematical physicist from the Université Libre de Bruxelles (ULB), Professsor Pierre Gaspard, who was for the first time at our Schools and lectured on "Nonlinear Dynamics, Fluctuations and Non-Equilibrium Statistical Mechanics". He was followed by a colleague of his at ULB, Dr. Thomas Gilbert, who spoke on "Fractal Statistics of Non-Equilibrium Billiards" and a young Ph.D. student of Gregoire Nicolis (also at ULB), Kostas Karamanos, who presented for the first time his fascinating results on "Ergodic Properties of Relaxation Phase in Non-Chaotic Unimodal Maps".

In the remaining days of our event we heard speakers known to us also from earlier events, like Astero Provata (Athens Research Center Demokritos) on "Complexity and Organization in the Primary Structure of DNA", George Contopoulos on "Ordered and Chaotic Orbits in Spiral Galaxies", and Rudolph Dvorak on "Stability of the Lagrange Points: Analytical and Numerical Results". Finally, we heard Dimitris Kougioumtzis (Thessaloniki) speak on "The Complexity of Nonlinear Time Series Analysis", Theodore Karakasidis (Volos) on "Applications of Recurrence Quantification in Nonlinear Time Series Analysis", and George Pavlos (Xanthi) on « Spatiotemporal Distributed Systems: Self Organized Criticality and Chaos".

The 20st Summer School – Conference closed with lectures by M. Robnik (Maribor) on "Quantum Chaos in Generic Systems I and II", Vassilis Constandoudis (Athens) on "Classical and Quantum Chaos in the Dissociation of a Diatomic Molecule in a Laser Field" and Dimitris Ghikas (Patras) on "Classical Chaos and Quantum Information".

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2. The 21st International School - Conference of 21 July – 2 August 2008: First Time in Athens!

I suppose the reader of these memoirs will have wondered at some point, how come, in all these years of traveling, we did not stop one time at the port of Athens! We had started from Samos, continued to Crete, next Peloponnese, then Xanthi in the north, later Livadia and Chalkida in central Greece, then again Patras…. What happened to Athens? Why hadn't our journey yet led us to its shores?

Th answer is simple: First of all, Athens is a very big city whose two major academic institutions, the University of Athens (UA) and the National Technical University of Athens (NTUA) have campuses far from the sea. This means that our sailors would have to wait for the weekend to go for a swim! They would have to take the bus or metro every day to the lecture hall, have a quick lunch at the nearby cafeteria and listen to lectures until six in the evening!

It takes a certain maturity for the young students and participants to follow such a schedule. But, by 2008, we had already traveled a long way. Besides the adventure, young and old sailors alike had come to expect a lot from these events. And what we offered them in the summer of 2008 at the National Polytechnic University of Athens, even by the standards of earlier Summer School Conferences, was truly outstanding!

First of all, the organization team led by Professor Kyriakos Hizanidis at NTUA had secured a very comfortable lecture hall at the center of the campus, equipped with all the necessary lecturing commodities and especially excellent air conditioning (see Figure 59). Our colleagues had made sure that nice coffee breaks were offered promptly just outside the hall, where there was also a lot of space on the walls to place posters. "All" that the Organizing Committee of the 21st Summer School – Conference had to do was: (a) attract distinguished invited speakers from Greece and abroad, and (b) find the funds to cover their local expenses!

Figure 59: Scenes from the comfortable lecture hall of NTUA, at the start of the 21st Summer School – Conference. Left: Bountis and Hizanidis are walking down to declare the meeting officially open. Right: Professor Hizanidis, as the main organizer, gives the opening speech.

Fortunately, by that time the successful experiences of our voyage were well – known not only to scientists around the world, but also the Greek Ministries of Education, Culture and Foreign Affairs, as well as our Universities. So, miraculously enough, for one more time, with the help of Government agencies, and contributions from NTUA and the University of Patras, we managed to be hospitable to our invited speakers and offer everyone a scientifically rewarding as well as enjoyable experience.

However, we wouldn't have been able to cover lunches, Conference dinners and our Sunday excursion to the tomb of Marathon, had it not been for the 150 euro registration fee that all our participants (except invited speakers) had to pay! Today, this sounds like a big amount, but 2008 was long before the huge financial crisis that shook Greece from 2010 to 2018!

Well, young and older sailors could not complain. We managed to collect at our 21st event a great number of outstanding scientists from around the world, some of whom had come before, but many of them were coming for the first time. As I describe the lecture program below, I will stop to say a few words about all of them.

The first day, Monday 21st of July, began with our familiar highly distinguished Greek mathematician and Academician Professor Thanassis Fokas from Cambridge, who gave a fascinating lecture on his latest work entitled "Electro-magneto-encephalography for the 3-shell Model: Distributed Current in Arbitrary, Spherical and Ellipsoidal Geometry" (see Figure 60, left). He was followed by another well-known lecturer of our Summer Schools, Professor George Contopoulos, speaking this time about the "Stickiness Effect", a very important phenomenon concerning the non-uniformity of chaotic motion in conservative systems, to which we will return many times in future meetings. The day ended with a very educational lecture by Christos Efthymiopoulos (Astronomy Institute, Academy of Athens) on "Nekhoroshev Stability in Multidimensional Hamiltonian Systems and the FPU Case". It was followed by a long coffee break as the participants began to gather around the first posters, where young sailors from all over Greece were presenting their first research work on Nonlinear Dynamics and Complexity.

Figure 60: Left: Professor Fokas giving his lecture on Electromagnetoencephalography. Right: Professor Peter Leach (on the left) is having a leisurely discussion with Professor Celso Grebogi.

On the next day, Tuesday, July 22, we were very fortunate to have, as our first speaker, Professor Leon Chua from Berkeley, who was coming to Greece for the first time. Professor Chua was Chief – Editor of the International Journal of Bifurcation and Chaos (IJBC), on whose Editorial Board some of us already belonged for some time. He was already internationally known from his discovery (in 1971) of the "memristor", as a 4th circuit element (next to resistors, inductors, and capacitors), and his introduction (around 1992) of the famous "Chua's circuit", which was the simplest nonlinear electronic circuit that could be realized experimentally, and also exhibit all the chaotic phenomena we already knew from mathematical models.

Well, this year Leon came to our stop at Athens to speak to us about something that he called 'a new kind of science according to Wolfram". What did he mean by that? Well, Stephen Wolfram had already discussed complex dynamics in terms of what are called *cellular automata* which are symbolic arrangements of numbers in one dimension, which evolve at the next time step according to a specific rule. Depending on this rule, the propagating pattern could be simple (periodic) or complex (chaotic). All this was demonstrated in a monumental body of computer work producing a wealth of numerical results, which had not, however, undergone any classification.

Leon Chua had been able to perform an exhaustive classification of all these different cellular automata rules, according to their dynamical properties, and had recently published it in a series of volumes of his IJBC journal (see above). So, you can realize how happy we all were, especially our young sailors, to welcome him at our port and listen to his two – hour lectures on "A Nonlinear Dynamics Perspective of Wolfram's New Kind of Science". Leon stayed for several days at our Summer School – Conference and had discussions with many of our participants.

The remaining lectures on that day were by Stavros Farantos (Heraklion) on "Energy Localization in Large Molecules and Large-Scale Computations on Grid Infrastructures" and by Christof Jung (Cuernavaca, Mexico) on "The Chaotic Set of a Hamiltonian Scattering System with 3 Degrees of Freedom", both well-known to us from earlier ports.

On Wednesday, July 23, the main lectures were by Rudi Dvorak (Vienna) on "The Stability of Retrograde Orbits in (Astro)dynamical Systems", by Eric Mosekilde (Lyngby, Denmark), on "Biological Applications of Nonlinear Dynamics" and our old beloved friend Professor John Nicolis, on "The Role of Noise in Biological Information Processing". Here I want to emphasize especially the presentation of Eric Mosekilde, who led a very active group at the Technical University of Denmark, applying concepts of nonlinear dynamics and complexity to understand different oscillatory functions occurring in our kidneys, lungs and during pulsatile hormone secretion.

And on the next day, Thursday, July 24, it was the day of the Russians! From the group of Professor George Chechin, from the Southern Federal University of Russia, at Rostov-on-Don, on the Baltic Sea, came 3 speakers: George himself, and his Ph.D. students, Denis Ryabov and Konstantin Zhukov. I knew their work well, since they were working a topic close to my heart: Stability of fundamental periodic solutions (nonlinear normal modes) of 1-dimensional Hamiltonian lattices, using group theoretic properties.

They gave very nice lectures as follows: "Group-theoretical Methods for Studying Nonlinear Dynamics of Physical Systems With Discrete Symmetries" by Chechin, "Stability of Nonlinear Normal Modes in the FPU-β Chain in the Thermodynamic Limit" by Ryabov and "Group-theoretical Methods and Stability Analysis of Dynamical Regimes in Nonlinear Systems With Discrete Symmetries", by Zhukov. They had managed to find just enough funding for their travel and from

then on, we had to help. They were so happy they were able to come and felt so obliged about our hospitality that they invited me to Rostock the following year for a week! They must have been very appreciative about their trip to Greece that, when I visited them in 2009, they treated me very warmly, introducing me also to their Cossack traditions, even making me an honorary Cossack in a special ceremony!

The other lectures on that date were by the prominent, young theoretical physicist Thomas Gilbert, collaborator of Pierre Gasaprd at Université Libre de Bruxelles, on “Heat Conduction and Fourier's Law by Two-stage Local Thermalization”, our well – known friend from the past Sergej Flach (Dresden) on “Localization Versus Delocalization in Nonlinear Disordered Systems” and Astero Provata from Demokritos Research Center of Athens, speaking about “Synchronization of Local Oscillators in a Lattice Model”.

On the following day, we had with us another famous nonlinear scientist that had not been to our events since the School – Conference of 1991! It was Professor Celso Grebogi, coming from the University of Aberdeen this time, where he is heading until today the Institute for Complex Systems and Mathematical Biology. His talk addressed a question in this general area as follows: “Are the Fractal Skeletons the Explanation for the Plankton Paradox and the In-stent Restenosis?” He was followed by one more presentation by Eric Mosekilde entitled “Intra – and Inter – Nephron Synchronization in Renal Autoregulation”, and after him, Dimitris Kugiumtzis from Thessaloniki spoke on “Nonlinear Analysis of Univariate and Multivariate Time Series”.

Other speakers familiar from past presentations spoke on Saturday, July 26: Peter Leach on “Singularity Analysis Revisited”, George Tsironis on “Nonlinear Processes on the Electron Cyclotron Resonance Heating of Fusion Devices”, Haris Skokos on “Chaos Detection Techniques » and Vassilis Drakopoulos, still then at the University of Athens talked about Parameter Identification of Fractal Interpolation Functions: An Application to Medical Imaging”. By that time we all needed some relaxation : A nice dinner that evening and on Sunday an excursion to the Tomb of Marathon some 40 kilometers away from Athens, with perhaps some swimming on the side !

Indeed, on Saturday evening, following specific instructions, most of our guests, found their way to the Athens Metro and got off at the stop of « Monastiraki». There after a short walk around the old city of Plaka, we found a nice restaurant and sat at parallel tables, so that we can all see part of the ruins of the old city, called « the temple of the winds». There, we enjoyed lamb and other meats on the barbecue, as well as other Greek delicacies and engaged in joyful conversations, as one can see in Figure 61.

Next day, Sunday, July 27, was excursion day!

Well, since we were all in Athens, there were, of course, many choices where we could hire a bus and take our participants: Akropolis, Thisseion, the Agora, Archeological Museum, you name it! The problem was that all these marvellous places are far from the sea and it would be nice to include also some swimming and lunch by the sea for our excursionists. So, the decision was taken by the organizers: We would go to Marathon! First visit the site and then take a short ride to a nearby seaside village for fun and relaxation.

Now, what about a guide at Marathon? Well, there was no hesitation here. Lala Nicolis (the archaeologist wife of Professor Nicolis, see earlier chapters) was more than happy to oblige!

Figure 61: Top left: A group of participants is coming to the restaurant headed by the Russians! First is Ryabov, followed by Chechin and Zukhov on his right, while on his left we can see Kugiumtzis and behind him Dvorak smiling happily. Top right and below the food is not even served and everyone is having a great time! Left below, Sergej Flach is sitting far back, on his left are Chua and Mosekilde and the two guys arguing in the front are Chechin and Dvorak. Below right Haris Skokos and Vassilis Drakopoulos can be seen on the left, while Christos Antonopoulos is sitting front right.

As she had done on so many occasions in the past, she joined our excursion, and took us around the site of Marathon, where she spoke to us in detail about the history of the victorious battle of the Greeks against the Persians, that took place there in 490 B.C. (see Figure 62). She described to us at length many asepcts of the battle, and emphasized the importance of the Mound of Marathon, which symbolizes the tomb where the ancient Greeks buried their dead. She mentioned, of course, the famous epigram that the Greek master Simonidis had written on the epitaph:

«Ελλήνων προμαχούντες Αθηναίοι Μαραθώνι, χρυσοφόρων Μήδων εστόρεσαν δύναμιν» meaning "Athenians fighting first among the Greeks at Marathon, shattered the force of the golden clad Persians". Our visitors were very appreciative, although somewhat bothered by the heat, which froced us to constatntly look for shade under the olive trees, as we walked around the site.




Figure 62: Top row: Groups of participants guided by Lala Nicolis (first on the left in the left photo and closest to the camera in the right one) at the Marathon site, taking advantage of every opportunity to stand in the shade! Bottom row: On the left, Lala is explaining to us about the Mound of Marathon signifying the place where the dead Greek soldiers were buried. On the right, she is speaking us close to the marble memorial stele commemorating the battle.

After all that glorious history, we were all ready for some relaxation. So we drove to a nearby beach for swimming and had lunch at a local restaurant, having a great time, as can be seen in Figure 63 (top row).

The second week of our 21st event began with lectures by some familiar experienced sailors like Ko van der Weele (Patras) speaking about "Critical Flow and Pattern Formation of Granular Matter on a Conveyor Belt", Vassilios Basios (Brussels) on "Non-standard Pattern Formation During Self-organization Within a New Paradigm of Macromolecular Crystallization" and Kostas Eftaxias (Athens) on "Monitoring of Final Pre-seismic Phases From their Electromagnetic Precursors in Terms of Extensive and Non-extensive Statistical Mechanics", where the speaker made a connection between the statistics of his seismic signals with Tsallis entropy and thermostatistics, as presented by Constantino himself at earlier meetings.

Finally, I mention from the first day, the talk given by a former Ph.D. student of Simos Ichtiaroglou, one of the many young sailors that had already come of age: Vassilios Koukoulogiannis, now an

authority on the important topic of localized oscillations (breathers), gave a presentation of his recent work entitled "Existence and Stability of Localized Structures in Hexagonal an Honeycomb Lattices".

The following day, Tuesday July 29, was also special in its own way: We were fortunate to have among us, as the first speaker, one of the most famous European experts on applications of Nonlinear Dynamics to physics and biomedicine: Professor Jürgen Kurths (then at the University of Berlin, Potsdam) who spoke on "Phase Synchronization of Neurons in Brain Diseases". The reader may recall that we had also heard interesting presentations regarding this topic also four years earlier, at the 2004 Olympic Summer School – Conference, by Peter Tass and his group, regarding Alzheimer's and Parkinson's disease. Professor Kurth's lecture was followed by another interesting talk on a related topic, "Entropy Measures for Studying Brain Dynamics", by Anastasios Bezerianos (Patras), whom we know well from earlier meetings.

Figure 63: Top row: Photos from the Sunday lunch by a beach near Marathon. On the left, Thomas Gilbert is seen on the left desperate to be included in the picture, Peter Leach can be seen on the right with Angela de Sanctis and her husband on his left while I am standing above checking if everything is ok. Bottom row: (Left photo) Upon returning to Athens, a young sailor is accompanied by the "older sailors" Steven Bishop and Marko Robnik. On the right photo, Bishop, Gilbert and Robnik are enjoying dinner with Bountis and his daughter Athena.

We then continued on Wednesday, July 30, with lectures by the "elder" Kyriakos Hizanidis (Athens Polytechnic), speaking on "Three-Dimensional Spatio-Temporal Vortex Lattices", followed by

another young sailor that had come of age, Yannis Kominis, also at the Athens Polytechnic, presenting a topic that was new at the time, “Lattice Solitons in Photonic Structures”, but which would attract a lot of attention in later years.

On the next day, it was time to be more “educational”: I gave an introductory lecture on my favorite topic of “Stability and Chaos in Multidimensional Hamiltonian Systems” and was followed by Spyros Pnevmatikos, who spoke on his beloved subject of “Singularities of Dynamical Systems”. Spyros and I, together with other colleagues like Marko Robnik (who had spoken the previous day on Quantum Chaos), Kyriakos Hizanidis, John Hadjidemetriou, Dimitrios Ghikas and several others, while appreciating the presentation of new results, always felt that our meetings should above all be Schools, and, therefore, made sure that they were as pedagogical as possible.

However, it is true that balancing education and the presentation of new results has been a delicate point throughout all our journey. To be honest, it is a point we were never able to resolve to our satisfaction. From the very beginning of our travels, we always felt that we had to balance fundamental knowledge and new discoveries in Nonlinear Science and Complexity. However, as the years went by, it became evident that the new results, presented either by mature scientists or young researchers, were too exciting to put aside, in favor of repeating the same theory.

So, we tried to meet this challenge in several ways: First, we gave the main lecturers plenty of time and encouraged them to spend the first half of their talk on introductory topics. Secondly, we edited several volumes of the series “Order and Chaos”, where we published, in Greek, mainly for the benefit of our young sailors, some of the most educational lectures of our Summer School – Conferences. And last, but not least, we devoted in our events several hours of informal discussions between younger and older participants, either during poster sessions, or in the evenings, around the dinner table.

Most importantly, of course, our Summer School – Conferences always lasted about 10 - 12 days, which gave our young sailors plenty of time to listen to educational lectures, follow research presentations, discuss posters and socialize with the speakers at dinners, leisurely excursions and cultural events. By 2008, our gatherings had matured and developed a “character” of their own, far beyond what we had originally planned at the beginning of the journey some 20 years ago! The fact that at every stop new youths and new speakers were added to a growing body of fellow travelers, while others who had left at earlier ports kept coming back meant that we were doing something right!

And thus, with the lectures of Dimitris Frantzeskakis (Athens), Vassilios Rothos (Thessaloniki), Panos Kevrekidis (Amherst, USA) on the important topic of *solitons* and its applications, as well as the inspiring lecture of Steven Bishop (UCL, London) on “Global System Dynamics”, one more of our meetings came to a close, but… did not actually end! Astero Provata, Kyriakos Hizanidis and I immediately began “chasing” our participants and one year later published the proceedings in the International Journal of “Nonlinear Phenomena and Complex Systems”, volume 11(2), containing many of the presentations of our 21st Summer School – Conference of Athens, 2008.