

Greeting at the opening of the NASCA Conference, 3 July 2023, NKUA, Athens

Dear Rector of the National and Kapodistrian University of Athens, Prof. Thanos Dimopoulos, Dear President of the Université du Littoral Côte d' Opale, dear colleagues from Greece and abroad participating in the Numerical Analysis and Scientific Computing with Applications 2023, ladies and gentlemen.

It is my pleasure to be here, and I thank the organizers, especially Professor Mitrouli and Professor Khalide Jbilou for the invitation. Representing as Rector the National Technical University of Athens --NTUA -- I take this opportunity to mention that numerical analysis and especially scientific computing have center stage in undergraduate and postgraduate curricula at NTUA and more so in the diverse research activities at NTUA.

Let me briefly introduce my university: NTUA, together with the Univ. of Athens, is the oldest university in Greece and it has contributed unceasingly to the country's scientific, technical, and economic development since its foundation in 1837. It is the leading technical University in Greece, the alma mater of many scientists in Greece and many distinguished academics in the diaspora, especially in North America and Europe.

NTUA with 15000 undergraduate students and 400 faculty members comprises nine academic Schools: Chemical Engineering, Electrical and Computer Engineering, Mechanical Engineering, Civil Engineering, Architecture, Rural, Surveying and Geoinformatics Engineering, Mining and Metallurgical Engineering, Naval Architecture and Marine Engineering, and the School of Applied Mathematical and Physical Sciences.

NTUA excels in research performance. Together with its own Institute of Communication and Computer Systems is the national champion in competitive European research funding and so far ranks #15 at the Horizon Europe Program which spans the funding period 2021-2027.

As I mentioned, NTUA values applied mathematics and it is in a very advantageous position to attract the best graduates from secondary education in math and physics. The motto of NTUA is based on the three-legged stool of scientific progress pertaining to engineering science: theory, experiment, computation. Having said that let me make a persona note. The moto I just mentioned was strongly founded in me during my time as a PhD candidate at the University of Minnesota, Department of Chemical Engineering and Materials Science in the eighties and later in the nineties as a visiting scientist. It was at that time that I was exposed together with the whole research group of my advisor, the late professor Skip Scriven, to the legendary works of Youcef

Saad, who later joined the University of Minnesota, and I am so glad that he is here in this conference. Iterative methods for solving large and sparse linear systems and eigenvalue problems were at those times at the center of attention and practical use for researchers in fluid mechanics and practitioners of discretization methods, like finite elements. I am indebted to Prof. Saad for what he has offered to the computational engineering science community.

Let me close by reconnecting with the motto: theory, experiment, computation. It is not only the first part, that is theory, but especially the 3<sup>rd</sup> part – computation -- that are indispensable, along with the advent of high-performance computers, to interrogate effectively and efficiently the partial differential equations for the conservation of mass, momentum and energy – the basis in engineering theoretical modeling from first principles. They were desperately needed back in the nineties; they are still needed for the same purpose while striving to survive in competitive coexistence with machine learning and big data in the AI era. May I also say, regarding the latter, that experiments are providing data which are needed in huge quantities for the training and validation of neural networks. And if they are not huge enough, then simulations are the only substitutes.

With that, I wish you a fruitful conference, have a pleasant stay in the city of Athens and relaxing summer vacations. I will be around again tomorrow at 3.00 pm with my plenary talk.

Andreas G Boudouvis

Professor and Rector

National Technical University of Athens