

Address by E.E. Gdoutos

Dear Head of the Prefect of Evros

Dear Academician Kounadis, representative of the Academy of Athens

Dear Distinguished Guests

Dear Colleagues and friends

Ladies and Gentlemen,

On behalf of the Organizing Committee it is a great pleasure and honor for me to address you on the occasion of the “16th European Conference of Fracture.” First of all, I would like to greet and welcome to Alexandroupolis our distinguished guests who traveled long distances from around the world and still are under jet lag to participate in this meeting. I am happy and proud to have with us world renowned experts who came here to discuss problems related to the failure of materials and structures. I believe that the tranquility and peacefulness of this small town will provide an ideal environment for a group of scientists to gather and interact on a personal basis.

Started in 1976, the European Conference of Fracture (ECF) takes place every two years in a European country. Its scope is to promote world-wide cooperation among scientists and engineers concerned with fracture and fatigue of solids. The conference is under the auspices of the European Structural Integrity Society (ESIS) and is sponsored by the American Society of Testing and Materials, the British Society for Strain Measurement, the Society of Experimental Mechanics of USA, the Italian Society for Experimental Mechanics, the Japanese Society of Mechanical Engineers. ECF16 focuses in all aspects of structural integrity with the objective of improving the safety and performance of engineering structures, components, systems and their associated materials. Emphasis is given to the failure of nanostructured materials and nanostructures and micro- and nanoelectromechanical systems (MEMS and NEMS). The technical program of ECF16 is the product of hard work and devotion of more than 150 world leading experts to whom I am greatly indebted. The success of ECF16 relied solely on the dedication and hard work of the members of the Scientific Advisory Board, the pillars of ECF16. As chairman of ECF16 I am honored to have them on the Board and work closely with them for a successful ECF16.

Fracture mechanics analysis has been successful for many years in the prevention of failures of engineering materials and structures. It is based on the realistic assumption that all materials contain crack-like defects from which failure initiates. New technological developments, however, put new challenges for fracture mechanics research and development. Quasi-brittle materials including concrete, cement pastes, rock, soil, etc. are being extensively used in engineering applications. Layered materials and especially thin film/substrate systems are becoming important in small volume systems used in micro and nanoelectromechanical systems (MEMS and NEMS). Nanostructured materials are being introduced in our every day life. In all these problems fracture mechanics plays a major role for the prediction of failure and safe design of materials and structures. Failure of materials and structures at the

micro and nano scale levels are adequately addressed at ECF16. 6 out of 14 plenary lectures and 88 out of 698 papers are referred to in this area.

In this conference 786 papers and fourteen plenary lectures will be presented. The papers are arranged in 25 tracks and 35 special symposia/sessions, which cover 156 technical sessions of an average of 5 papers per session. The papers of the tracks have been contributed to the conference, while the papers of the symposia/sessions have been solicited by the organizers. Both tracks and symposia/sessions fall into two categories, namely, fracture of nano and engineering materials and structures.

ECF16 will be attended by more than seven hundred participants far more than any other previous ECF over a thirty year period. The participants of ECF16 came from 49 countries. Roughly speaking 66% came from Europe, 17% from the Americas, 8% from the Far East and 9% from other countries.

I am proud to be hosting ECF16 in the beautiful town of Alexandroupolis site of the Democritus University of Thrace and I am pleased to welcome colleagues, friends, old and new acquaintances. I am sure that besides the superb technical program of ECF16, you will enjoy the majestic city of Alexandroupolis with its unique beaches and scenic beauty, the areas of historical interest and archeological importance of the prefecture of Thrace, our full-day excursion to the nearby island of Thassos, the delicious local cuisine, and the traditional Greek hospitality. Our goal is to make ECF16 an unforgettable event from the scientific, social and recreational point of view.

Ladies and Gentlemen,

I closing this address, I wish to thank very sincerely the authors who have contributed to this conference, the symposia/sessions organizers for their hard work and dedication and the referees who reviewed the quality of the submitted contributions. The tireless effort of the members of the Organizing Committee as well as of numerous individuals, the people behind the scenes, who spent many hours of their valuable time for the success of this meeting, is appreciated. I am deeply indebted to the senior students of the Department of Electrical and Computing Engineering of the Democritus University of Thrace Messrs. N. Tsiantoulas and S. Sialis for their hard work and dedication in the preparation of the website and the administration menu of ECF16 in a timely and efficient manner and for their efforts in helping me compile this volume. Finally, a special word of thanks goes to Mrs. Nathalie Jacobs of Springer for the nice appearance of the book of abstracts and her kind and continuous collaboration and support.

Having received the volume of abstracts the success of the meeting will still lie ahead. Presentation of technical papers alone is not enough for effective scientific communication. It is the healthy exchange of ideas and scientific knowledge, formal and informal discussions, together with the plenary and contributed papers that will make a fruitful and successful meeting. However, the goal of the organizers of this meeting is not only to fulfill its technical and scientific mission, but also to contribute to the acquaintance, the development and deepening of personal contacts and friendship among the participants.

I would like to acknowledge the generous support in various ways of the following organizations:

The Democritus University of Thrace
The Research Committee of the Democritus University of Thrace
The Ministry of National Education and Religious
The National Technical University of Athens
The Prefecture of Evros
The Prefecture of East Macedonia and Thrace
The Hellenic Tourist Organization
The European Office of Aerospace Research and Development
The Office of Naval Research

Finally a word of thanks goes to all the officials who honored with their presence this opening ceremony of the 16th European Conference of Fracture.

Thank you very much, all.