

# **On the state and activities of the Balkan Tribological Association during the period 2008-2011**

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The Society of Bulgarian Tribologists

## **1. Introduction**

The Balkan Tribological Association (BTA) was founded in Sofia on October 3<sup>rd</sup>, 1993, during the first conference on tribology of the Balkan countries „BALKANTRIB'93”, organized and carried out by the Society of Bulgarian Tribologists.

The founder-members of the BTA are:

- The Society of Bulgarian Tribologists, Bulgaria
- The Yugoslav Tribological Society, Yugoslavia
- The Romanian Tribological Association, Romania
- The Department of Mechanical Engineering at the Aristotle's University Thessaloniki, Greece
- The Engineering Department at the Erciyes University, Turkey
- The Faculty of Mechanical Engineering at the University of Skopje, FYR of Macedonia.

The Conference „BALKANTRIB'93” ended with a Declaration of the aims and tasks of the Balkan Tribological Association. Prof. DSc. Nyagol Manolov was elected to first President of the BTA.

The Balkan Tribological Association is a union of national civil associations of the countries of South-East Europe.

Up to now the basic attention of BTA was directed toward organization of the International tribological conferences BALKANTRIB in three years period in all member-countries of BTA.

The subject of the present paper is the mandate period 2008 – 2011 begun after the first 15 years cycle when Bulgaria took for the second time the engagement as mandate-bearer of the rotary management of BTA.

The **main tasks** of the Managing Committee of BTA in this period were:

1. Actualization and enhancement of the Statute of BTA;
2. Formation of International Academic School on Tribology and working-out of the Regulations for its activities;
3. Current actions related to enlargement of the functional space of BTA.

## **2. Exposé**

The activities of the Managing Committee of BTA to the accomplishment of the three above tasks were as follows:

### **2.1. The Statute of the Balkan Tribological Association**

#### **Article 1**

*Name of the organization:* Balkan Tribological Association (BTA).

#### **Article 2**

*Date and place of founding:* October 3<sup>rd</sup>, 1993, in Sofia, Bulgaria.

### **Article 3**

*Character of the organization:* International non-governmental organization unifying legal civil societies, groups, companies and institutions of tribologists of the Balkan countries. BTA is a perpetual organization.

### **Article 4**

*Language:* The official language of BTA is English.

### **Article 5**

*Address:* The address of the head office of BTA is changed every three years during the Conference BALKANTRIB. The first address was the address of the Tribology Center at the Technical University of Sofia, Bulgaria (1993-1996).

### **Article 6**

*Objectives:*

- To maintain a live continuous contact between tribology and kindred societies and groups, as well as between the individual specialists in the Balkan region.
- To facilitate information exchange between tribology and kindred societies, groups and specialists to keep each other informed of their activities, in particular of their forward programmes, as well as of the tribology activities worldwide.
- To ensure that the international conferences on tribology BALKANTRIB are arranged at the agreed intervals and to assist the respective host-societies and groups in the organization and the conduct of the conferences.
- To assist the international co-operation in matters connected with tribology science, technology and education.

### **Article 7**

*Management:* The managing body of BTA is the Managing Committee (MC). Each founder-country has maximum three members in MC and one of them is Vice-president of MC. The President of BTA and MC is elected every three years by the MC from the mandate-bearer country (host of the Conference BALKANTRIB) during the Conference.

Current important decisions on the level of the General Assembly of BTA are also taken at extended open meetings of the Managing Committee of BTA organized by the country mandate-bearer.

The conference BALKANTRIB is being organized every three years in the country mandate-bearer for the next mandate period. Mandate-bearer can be only a founding member-country, in the following order: Bulgaria, Greece, Romania, Serbia, Turkey and FYR of Macedonia.

The General Assembly of BTA is conducted during the current conference BALKANTRIB. Current important decisions on the level of the General Assembly of the BTA are also taken at extended open meetings of the MC of BTA organized by the country mandate-bearer.

Correspondence form of decision taking is also accepted.

### **Article 8**

*Membership:* Members of BTA are national tribological societies or associations, groups, companies, institutions and individuals, if there is no national tribological society in that country. The members of BTA do not pay membership dues.

The founder-members of the BTA are:

- The Society of Bulgarian Tribologists, Bulgaria;
- The Serbian Tribology Society, Serbia (ex Yugoslav Tribology Society);
- The Romanian Tribological Association, Romania;
- The Department of Mechanical Engineering at the Aristotle's University Thessaloniki, Greece;
- The Engineering Department at the Erciyes University, Turkey;
- The Faculty of Mechanical Engineering at the University of Skopje, FYR of Macedonia.

#### **Article 9**

*Conditions of membership:* To be admitted to BTA the new member has to: submit application form to the President of BTA; to subscribe to the statute and the objectives of BTA. The admission is effectuated by the Managing Committee of BTA.

#### **Article 10**

*Personnel policy of BTA:* The academic promotion, education and recognition by the Balkan Tribological Association of the specialists are realized through the International Academic School in Tribology (MASCH–BALKANTRIB).

The Regulation of MASCH –BALKANTRIB is part and parcel of the Statute of BTA.

#### **Article 11**

*Permanent operative activity of the BTA:* Working out of tribological network in the space of the BTA on the problems of science, education and technologies will be realized by an operative body called Coordination Council of BTA. Its activities are regulated by the Regulation of the Coordination Council of BTA, to be part and parcel of the Statute of BTA.

#### **Article 12**

*Journal:* The Balkan Tribological Association issues the scientific periodical **Journal of the Balkan Tribological Association**. Decisions about the place of publishing and the Editorial staff are taken by the Managing Committee of BTA.

#### **Article 13**

*Protocols:* The minutes of the meetings of the Managing Committee of BTA with the decisions should be sent to all members of the Managing Committee of BTA and approved or altered at the following Managing Committee meeting.

Sofia, September 2010

## **2.2. Regulation of MASCH–BALKANTRIB**

1. The International Academic School in Tribology MASCH –BALKANTRIB is a contact section between BTA and the Interdisciplinary Civil Academy.

2. The basic purpose of MASCH –BALKANTRIB is teaching, promotion and academic recognition of tribological specialists for the needs of economic sectors, companies and institutions in the member-countries of BTA. This means:

- teaching of masters, experts, mediators, researchers and doctors in tribology;
- nomination and conferring of scientific d and titles in tribology;

- academic recognition of merits, medals and diplomas for organizers and specialists in tribology with special contributions.

**3.** The Academic School serves the interests and needs of BTA according to its Statute and is a Branch of the Interdisciplinary Civil Academy.

**4.** Legitimacy of teaching, scientific degrees, titles and awards is based on the Statute of the Interdisciplinary Civil Academy and the Regulation of the Academic Council of the Interdisciplinary Civil Academy as legal entity in Bulgaria.

**5.** Proposals and legitimacy of the academic promotion and recognition should be made at the Managing Committee of the Interdisciplinary Civil Academy by the Scientific-Methodological Council in Tribology of MASCH–BALKANTRIB.

**6.** Management and activities of MASCH–BALKANTRIB are realized by the Scientific-Methodological Council in Tribology, which includes representatives of all member-countries of BTA. The activities of the Scientific-Methodological Council in Tribology are effectuated in Sofia, Bulgaria according to a program, which should be agreed with the present Regulation.

**7.** The Scientific-Methodological Council in Tribology includes three-member management – director, mediator and vice-director, for members from Bulgaria and three representatives of each member-country of BTA, as decided at the Open Meeting of the Managing Committee of BTA on 15.09.2010 in Sozopol, Bulgaria, namely:

1. Assoc. Prof. Dr. Eng. Mara Kandeve – Director (President), Bulgaria
2. Assoc. Prof. Dr. Emilia Assenova – Mediator, Bulgaria
3. Assoc. Prof. Dr. Eng. Nikolai Tonchev – Vice Director, Bulgaria
4. Assoc. Prof. Dr. Eng. Viara Pojidaeva, Bulgaria
5. Prof. DSc. Slavcho Ivanov, Bulgaria
6. Assoc. Prof. Dr. Jecho Kalichin, Bulgaria
7. Assoc. Prof. Dr. Eng. Yuliana Yavorova, Bulgaria
8. Prof. Dr. Eng. Konstantinos-D.Bouzakis, Greece
9. Prof. Dr. Atanasios Michailidis, Greece
10. Prof. Dr. Sevasti Mitsi, Greece
11. Prof. Dr. Eng. Nikulae Napoleon Antonescu, Romania
12. Prof. Dr. Eng. Andrei Tudor, Romania
13. Prof. Dr. Eng. Minodora Ripa, Romania
14. Prof. Dr. Eng. Branko Ivkovic, Serbia
15. Prof. Dr. Eng. Miroslav Babic, Serbia
16. Ass. Prof. Dr. Eng. Aleksandar Vencl, Serbia
17. Prof. Dr. Eng. Mehmet Baki Karamis, Turkey
18. Prof. Dr. Eng. Hakan Kaleli, Turkey
19. Prof. Dr. Eng. Cem Sinanoglu, Turkey

**8.** The Regulation for the activities of the School is prepared by the Scientific-Methodological Council in Tribology of MASCH–BALKANTRIB, is agreed with the Managing Committee of BTA and is approved by the Managing Committee of the Interdisciplinary Civil Academy.

**9.** MASCH–BALKANTRIB has national branches in the member-countries of BTA, as follows:

- MASCH–BALKANTRIB – Bulgaria
- MASCH–BALKANTRIB – Greece
- MASCH–BALKANTRIB – Romania
- MASCH–BALKANTRIB – Serbia
- MASCH–BALKANTRIB – Turkey

**10.** The management of the national branches of the School is realized by national Scientific-Methodological Councils in Tribology including 5 to 7 members.

**11.** The meetings of the Scientific-Methodological Council in Tribology of MASCH–BALKANTRIB are held in Sofia, and of the national councils – in the corresponding countries of the BTA.

**12.** Mission trip expenses for the meetings of the Scientific-Methodological Council in Tribology in Sofia are assumed by each country for its delegates.

**13.** Teaching in tribology is accomplished on the territory of each member-country. Syllabuses, teaching programs, lecturers and students are proposed by the national Scientific-Methodological Councils and are approved by the Scientific-Methodological Council of MASCH–BALKANTRIB.

**14.** Defense of Doctor Theses in tribology are held at the Meetings of the Scientific-Methodological Council of MASCH–BALKANTRIB. Doctor Theses are reviewed by one reviewer proposed by the national Scientific-Methodological Council and second one proposed by the Scientific-Methodological Council of MASCH–BALKANTRIB. The expenses for the defense are assumed by the candidate and are appraised by the Scientific-Methodological Council of MASCH–BALKANTRIB.

**15.** Proposals for awarding with diplomas for academic advance are made by the national Scientific-Methodological Councils, and are discussed and approved by the Scientific-Methodological Council of MASCH–BALKANTRIB.

**16.** Diplomas are issued in English and are signed by the Chairman of the Managing Committee of the Interdisciplinary Civil Academy and the Director of MASCH–BALKANTRIB.

**17.** The national Scientific-Methodological Councils assume the expenses for issuing the diplomas.

**18.** Tuition fees for lectures, seminars and consultancies are determined by the national Scientific-Methodological Councils.

### **2.3. Activities related to the expansion of the functional space of BTA**

**A)** On 14<sup>th</sup> September 2010, in Sozopol – Bulgaria an open Meeting of the Managing Committee of BTA was held with the following agenda:

- Founding of the International Academic School MASCH–BALKANTRIB as branch of the Interdisciplinary Civil Academy INGA, Sofia;
- Election of management and members of the Scientific-Methodological Council of MASCH–BALKANTRIB;
- Others.

31 delegates from Bulgaria, Romania, Serbia and Turkey took part at the Meeting.

**The Decisions** of the open Meeting of the Managing Committee of BTA according to the agenda are as follows:

**I.** BTA creates the International Academic School “BALKANTRIB” as branch of the Interdisciplinary Civil Academy INGA, Sofia, called MASCH–BALKANTRIB-INGA for short.

**II.** Three-member Management of the School is assigned, namely: Chairman, Mediator and Vice-Chairman.

**III.** The activities of the School are realized through the Scientific-Methodological Council in Tribology of minimum 15 members with the participation of all member countries of BTA. The activities of the School are effectuated operatively by national Scientific-Methodological Councils in Tribology of 5 members in the corresponding countries.

The national Scientific-Methodological Councils have three basic tasks:

**1.** Organizing, preparation and awarding for promotions of tribologists on different levels;

**2.** Awarding and introduction of tribologists for scientific degrees and titles in accordance with the Regulation and requirements of the Interdisciplinary Civil Academy INGA;

**3.** Awarding and introduction of eminent tribologists for honorary titles and medals

**IV.** The subjects of activity of the School are, as follows:

**1.** Training of highly qualified engineering and technical staff in tribology;

**2.** Training of academic specialists, teachers and researchers in tribology;

**3.** Informational, organizational and research activities related to the promotion of highly qualified and academic tribologists for the needs of the civil society.

The School is supported financially by personal, corporative funds and/or funds of national and international projects.

**V.** The headquarters and address of management of the School to be: Slavyanska St. 5A, Sofia 100, Bulgaria.

**VI.** Management and members of the Scientific-Methodological Councils should be elected.

**VII.** The Scientific-Methodological Council in Tribology should prepare and approve the Regulation for the activities of MASCH–BALKANTRIB -ИНГА until March 30, 2011. Responsible: Assoc. Prof. Dr. Mara Kandeва.

**VIII.** The Managing Committee of BTA should update and approve the Statute of BTA taking into account the modern trends in the development of science and in tribology. Special place in the Statute of BTA should be given to the role of the Journal of BTA за. Responsible: Assoc. Prof. Dr. Mara Kandeва.

**IX.** At the Conference BALKANTRIB’11 to award as Honorary Chairman the first Chairman of BTA Prof. DSc Nyagol Manolov and to give support for his nomination as gold medalist of the Tribology Trust in London in connection with his upcoming 80-years anniversary.

X. The Chairman Mara Kandeveva of BTA as mandate bearer is assigned the task to present at BALKATTRIB'11 a Report on the activities of the Association during the mandate period 2008-2011.

The decisions with the signatures of the authorized delegates of the open Meeting of the Managing Committee of BTA should be sent to the member-countries of BTA.

The Decisions were accepted with the signatures of the representatives of the Managing Committee of BTA:

1. Assoc. Prof. Dr. Eng. Mara Kandeveva, Bulgaria *signature*
2. Assoc. Prof. Dr. Emilia Assenova, Bulgaria *signature*
3. Prof. Dr. Eng. Branko Ivkovic, Serbia *signature*
4. Prof. Dr. Eng. Miroslav Babic, Serbia *signature*
5. Prof. Dr. Eng. Andrei Tudor, Romania *signature*
6. Prof. Dr. Eng. Niculae Napoleon Antonescu, Romania *signature*
7. Prof. Dr. Eng. Hakan Kaleli, Turkey *signature*

The item "Others" of the open Meeting was dedicated to the presentation by the Chairman of INGA Prof. DSc. Nyagol Manolov of diplomas and medals to some of the eminent members of the Balkan Tribological Association, as follows:

- Prof. Dr. Eng. Niculae Napoleon Antonescu, Romania;
- Prof. Dr. Eng. Andrei Tudor, Romania;
- Prof. Dr. Eng. Miroslav Babic, Serbia
- Prof. Dr. Eng. Hakan Kaleli, Turkey
- Prof. DSc Eng. Slavcho Ivanov, Bulgaria

## B) THE JOURNAL OF THE BALKAN TRIBOLOGICAL ASSOCIATION

Until now we have published 21 books: 4 in 2006, 4 in 2007 and 4 in 2008, 4 in 2009, 4 in 2010 & 3 in 2011. In the books since the last conference (2009 –2011) were published 147 scientific papers (including reviews), and 9 information materials concerning the scientific events in the field of tribology compared with the previous period 2005 – 2008 where the total number of papers was 137.

The statistical data shown above prove that JBTA is not only a reputed Journal of the Balkan countries and those of South Eastern Europe, but also an International Journal. The Editorial Board has fulfilled the decision taken in Sozopol 2008 that more than 50 % of the published papers should be by authors of the Balkan countries. The percentage of such papers has been increased by 10 % since the previous period. All the papers included in the Conference proceedings of Balkantrib'08 that were submitted by the Chairmen of the respective Tribological Societies were published in JBTA, as well as new papers submitted by them to the Journal.

New achievement since Balkantrib'08 is the awarding of the Journal with an Impact Factor, since 2009. Now it is among the 5 900 scientific Journals in the world with Impact Factor, out of 30 000 published scientific Journals. In 2009 the Impact Factor of JBTA was 0.103 and in 2010 it has nearly doubled and has the value of 0.182. The journal Impact Factor is a measure of the frequency with which the "average article" in a journal has been cited in a particular year only in the other Journals which already have Impact Factor. The value of the latter will help you to evaluate a journal's relative importance, especially when you compare it to others in the same field.

Now the Journal is indexed in Chemical Abstracts – USA, Journal of Citation Reports, Elsevier Bibliographic database and Referativnii Zhurnal – Chemistry and VINITI – Russia. Since 2006 was created the web – page of JBTA within the Internet site of the SciBulCom Ltd., where the content of every book is published after it has been printed out. At the moment in it are included links to the Serbian Tribological Society and B.EN.A. We would like to be given links the sites of the other members of BTA, which will be included in the web-page, immediately.

At the moment we have in the Editorial Board of JBTA 52 manuscripts of the non-Balkan countries. This shows that we have achieved thrust from the international scientific community.

Since it was founded, JBTA assists in the scientific development of specialists from the Balkan countries for defending their Ph D theses and promotion - Ass. Professors and Professors. The present experience is giving us the ground to suggest the following for the future activities of JBTA:

- Broadening of the scope of the published papers, reviews and information with the following topics: mechanical contacts in gaseous, liquid and solid phase; composite materials, polymeric materials in mechanics and tribology; special materials in military and space technologies; European legislation in the field of tribotechnics and lubricating oils; management and organisation of the production, machinery breakdown; the role of tribology in the sustainable development of technology, educational problems in tribology, etc.
- Increase of the assisting for finding of students and PhD students for the Balkan Universities, publication of contemporary information for jobs, industry development, etc.; assisting of the development of EU, NATO and UN projects.

Info by Prof. Slavi Ivanov

## **C) CONFERENCES/SYMPOSIA, INTERNATIONAL AND INTERNAL RELATIONS**

### **C1) BULGARIA**

Participation of Bulgarian tribologists at International tribological forums

1. The Society of Bulgarian Tribologists organizes and conducts the annual local conference on tribology BULTRIB.

2. Participation at the 17<sup>th</sup> Symposium TAE - Esslingen, January 2010: Three papers by the Society of Bulgarian Society, leading authors E. Assenova, M. Kandeva, G. Mishev.

3. Participation at the International Conference „INSYCONT 2010” Cracow, Poland:  
- Plenary Paper about the activities of the Balkan Tribological Association by M. Kandeva and E. Asenova; Paper on “The functional atom in tribology and its applications” by M. Kandeva, M. Manolova-Daneva.

- Award to Prof. Pytko: “Medal of the Balkan Tribological Association and the Interdisciplinary Civil Academy-Sofia (INGA)” and the title “Doctor honoris Causa of INGA” in the occasion of the 80-anniversary of Prof. DSc Stanislaw Pytko.

4. Organizing and processing the Section „TRIBOLOGY AND TRIBOTECHNOLOGIES” at the 26th International Scientific Conference „65 years Faculty of Mechanical Technology” at the Technical University – Sofia, on September 14<sup>th</sup>-15<sup>th</sup>, 2010 in Sozopol, Bulgaria; including the open meeting of the Balkan Tribological Association.



5. Participation at the International Conference „Tribology and Ecology (science, education, practice)” in Moscow, Russia, April 2011:

- Plenary Paper about the activities of the Balkan Tribological Association by M. Kandeve and V. Pozhidaeva;

- Award to Prof. Garkunov: “Medal of the Interdisciplinary Civil Academy-Sofia (INGA)” and the title “Doctor honoris Causa of INGA” to Prof. Dmitrii Nikolaevich Garkunov.

6. Participation of E. Assenova, M. Kandeve and V. Pozhidaeva at the International Conference “Serbiatrib’11”, May 2011, Kragujevac, Serbia; 5 paper presentations.

7. Participation of E. Assenova and G. Mishev with three paper presentations at the 6<sup>th</sup> TQM – International Conference on the Total Quality Management, June 2011, Belgrade.

8. Participation at the International Conferences ICMEN, The “A” Coatings and Balkantrib’11 (5 paper presentations) and at the Open Meeting of the Balkan Tribological Association 3-5 October 2011, Thessaloniki, Greece.

The book “Conception of Development of Tribology in Bulgaria until 2020” by N.Manolov, M.Kandeve, E.Assenova, published in 2008 in Bulgarian is being translated in 2010 in Russian, edition of Kazahstan.

## **C2) SERBIA**

Name of the society: Serbian Tribology Society (STD)

Official web page: <http://www.serbiatribo.org.rs/>

The most active tribological research centres:

- Centre for Tribology – Faculty of Engineering Science, Kragujevac
- Tribology Laboratory – Faculty of Mechanical Engineering, Belgrade
- Center for Surface Engineering and Nanotechnology – Faculty of Technical Sciences, Novi Sad

Main activities during the period 2008 – 2011:

- In May 2009 was organized the 11<sup>th</sup> International Conference on Tribology – SERBIATRIB ’09 in Belgrade (69 papers of authors from 19 countries; 74 participants – 35 from abroad and 39 from Serbia).
- In May 2011 was organized the 12<sup>th</sup> International Conference on Tribology – SERBIATRIB ’11 (73 papers of authors from 18 countries published in the Proceedings).
- Two round tables with the topic: “Waste oils in the Republic of Serbia” were also organized.
- New President, Vice presidents and Executive board of the Serbian Tribology Society has been elected.
- Journal of the Serbian Tribology Society “Tribology in Industry”, with new Editorial board, keeps on with publishing (4 issues per year).
- Participation in many tribological conferences and forums (IV World Tribology Congress, Kyoto; 38<sup>th</sup> Leeds-Lyon Symposium on Tribology, Lyon; 8<sup>th</sup> INSYCONT, Krakow; ÖTG-Symposium 2008, Wiener Neustadt; 2<sup>nd</sup> and 3<sup>rd</sup> ECOTRIB, Pisa (2009)

and Wien (2011); 17<sup>th</sup> International Colloquium, Stuttgart, 2010; The International Conferences ICMEN, The "A" Coatings and Balkantrib'11, Thessaloniki, 2011).

Main publications:

- Proceedings of the 11<sup>th</sup> International Conference on Tribology - SERBIATRIB '09.
- Proceedings of the 12<sup>th</sup> International Conference on Tribology - SERBIATRIB '11.
- Serbian Tribology Society: History and Programme of Development (in Serbian).
- Glossary of Tribological Terms (in Serbian).

### **C3) ROMANIA**

**ART-** Rumanian Tribology Association

- 1: The PHD theses abstract (30..50 pages) of our young people was sent, by e-mail, to all ART members (120 members); in 2008-2011 are presented 18 PHD theses in tribology and machine elements fields;
2. The association (ART) organised the International Conference ROTRIB 10 in Iasi, in October 2010
3. The association is co-organisator of the National Seminar of Machine Elements, which in this year has been carried out in Bucharest, at "Politehnica" University.
4. The association promotes the international conferences in the field of tribology.

### **TRIBOLOGICAL CENTERS AND MAIN TRIBOLOGICAL TOPICS**

In Romania are several tribological centers with following topics:

- wear and lubrication fundamental research and biotribology - "Politehnica" University of Bucharest;
- wear and biotribology- the Solid Mechanics Center of the Romanian Academy;
- tribological coatings - "INOE" Physical Research Institute of Magurele ( by Bucharest);
- contact aspects with or without friction force - University "Stefan cel Mare" of Suceava;
- fatigue wear with application for rolling bearing - University "Gh. Asachi" of Iasi;
- tribology of petroleum industry and lubricants - "Petrol -Gas" University of Ploiesti;
- tribological properties of composite materials - University "Dunarea de Jos" of Galati;
- tribological properties of ceramics for sliding bearing - Technical University of Cluj-Napoca;
- synthetic lubricants - "Politehnica" University of Timisoara.

### **C4) TURKEY**

Organized conferences:

12<sup>th</sup> International Material Symposium 15-17 October 2008 Denizli/Turkey

5<sup>th</sup> Machine Design and Manufacturing Technology Congress, 17-18 October 2009, Konya-Turkey.

15<sup>th</sup> International Metallurgy and Material Congress 11-13 November 2010 Istanbul-Turkey

Other activities:

- Teaching and mentor supervising of Master Science, Postgraduate and undergraduate students in the field of tribology, as well as Research and development of Tribology in the

Mechanical Faculties of Kayseri (Prof. Baki Karamis, Prof. Fehmi Nair, Prof. Cem Sinanoglu, etc.), of Istanbul (Prof. Hakan Kaleli, Prof. H. Cimenoglu) and other university cities.

- Good practical contacts with Shell Ltd., Total Elf Ltd. and other oil and tribology related companies.

- Intention for forthcoming organization of Tribological conference in Istanbul and writing "Tribology book" in English and Turkish language by Prof. Hakan Kaleli.

- Developing tribological devices and procedures in the laboratories for students laboratory works and research projects.

- Participating in the editing of the Journal of the Balkan Tribological Association.

- "Tribological Carpet exhibitions" in INSA-Lyon France at 2003, BalkanTrib - Sozopol 2008, SerbiaTrib'09 - Belgrade and SerbiaTrib'11 in Kragujevac, organized by Mr. and Mrs. Kaleli.

## **C5) GREECE**

### **Activities of members of Balkantrib Association 2008-2011 (Thessaloniki group)**

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#### **Presentations in conferences:**

1. Zerspanen im modernen Produktionsprozess, Dortmund, Februar 26-27 2008
2. 35th International Conference on Metallurgical Coatings and Thin Films, San Diego, California, April 28-May 2 2008
3. 11th International Conference on Plasma Surface Engineering (PSE 2008), Garmisch-Partenkirchen, September 15-19 2008
4. 6th International Conference on Tribology "Balkantrib '08", Sozopol – Bulgaria, 12-14 June 2008
5. 3rd ICMEN Conference, 1-3 October 2008, Kallithea of Chalkidiki, Greece
6. 7th International Conference THE COATINGS, 1-3 October 2008, Kallithea of Chalkidiki, Greece
7. 36th International Conference on Metallurgical Coatings and Thin Films, San Diego, California, 2009
8. 3<sup>rd</sup> International Conference "Power Transmissions '09", Kallithea, Greece, 2009
9. 5th International Conference and Exhibition on Design and Production of Machines and Dies/Molds, 18-21 June 2009, Pine Bay Hotel - Kusadasi, Aydin
10. 37th International Conference on Metallurgical Coatings and Thin Films, San Diego, California, April 26-30, 2010.
11. 1<sup>st</sup> International Conference on Product Property Prediction, April 12-13 2010, Dortmund Germany
12. 43<sup>rd</sup> CIRP International Conference on Manufacturing Systems, Vienna University of Technology, Austria, 26 -28 May 2010
13. International Chemnitz Manufacturing Colloquium ICMC 2010, September 29-30, 2010 Chemnitz, Germany
14. 12th International Conference on Plasma Surface Engineering (PSE), September 13-17, 2010, Garmisch-Partenkirchen, Germany
15. Proceedings of International Conference of Competitive Manufacturing (COMA'10), 3-5 February 2010, Stellenbosch, South Africa
16. International Conference of Mechanical Engineering ICOME 2010, Craiova
17. 1st International Conference on Product Property Prediction, April 12-13, 2010, Dortmund, Germany
18. Aachener High Performance Cutting (HPC) Konferenz, 22-23 Juni 2010, Aachen
19. 4<sup>th</sup> Hellenic Conference on Metallic Materials, 4-5 November, 2010, Thessaloniki-Greece

20. The 2th Hellenic Conference on Robotics, 9-10 December, Patras, 2010
21. 38<sup>th</sup> International Conference on Metallurgical Coatings and Thin Films, 2-6 May 2011, San Diego CA, USA
22. 6th International Working Conference „Total Quality Management – Advanced and Intelligent Approches“, With Second Special Conference „Manufacture in Serbia 2011“, 7-11 June 2011, Belgrade
23. 12<sup>th</sup> International Conference on Tribology, May 11-13, 2011, Kragujevac, Serbia
24. 6<sup>th</sup> International Conference and Exhibition on Design and Production of MACHINES and DIES/MOLDS, 23-26 June 2011, Ankara Turkey
25. 2ο Διεθνές Συνέδριο «Engineering against Fracture – ICEAF II», 22 – 24 Ιουνίου 2011, Μύκονος
26. 10th International Conference on Technology of Placticity (ICTP 2011) September 25-30, 2011, Aachen, Germany
27. Micro Materials User Meeting, Downing College Cambridge, 26-27 September 2011
28. 9<sup>th</sup> International Conference “THE-A COATINGS”, 3-5 October 2011, Thessaloniki, Greece
29. 4<sup>th</sup> International Conference on Manufacturing Engineering “ICMEN”, 3-5 October 2011, Thessaloniki, Greece
30. 7<sup>th</sup> BALKANTRIB’11, International Conference on Tribology, 3-5 October 2011, Thessaloniki, Greece
31. FAG Aerospace Bearing Symposium, 21 and 22 September 2011, Würzburg, Germany.

**Publications in journals:**

1. Journal Surface and Coatings Technology
2. Annals of the CIRP – Manufacturing Technology
3. Mechanism and Machine Theory
4. Journal of the Balkan Tribological Association
5. Journal of the European Ceramic Society
6. Advanced Engineering Materials
7. Journal Mechanisms and Manipulators
8. Resources, Conservation and Recycling
9. International Journal of Modern Manufacturing Technologies
10. Journal of Materials Processing Technology
11. Key Engineering Materials
12. International Review of Mechanical Engineering (I.R.E.M.E)
13. Production Engineering
14. WEAR
15. International Journal “Total Quality Management & Excellence”
16. Journal of Material Science and Technology
17. Journal of Archaeological Method and Theory
18. Tribology in Industry
19. The Romanian Review Precision Mechanics, Optics & Mechatronics

In spite of being member of the BTA, the **FYROM** does not show any activities in the Association. FYROM, as well as Balkan nonmember countries, e.g. Croatia, Montenegro and Bosnia & Herzegovina, should be attracted more intensively to the work of BTA.

### *Concluding Remarks*

**The main tasks of Bulgarian mandate 2008 – 2011 were successfully completed.**

**Bulgaria passes the mandate of the chairmanship of BTA to the Greek party for the period October 2011 – 2014.**

The tribological domain is one where there is a strong potential for high level education, excellent research and technological development and, using the network of the Balkan Tribological Association, disseminating and converting more and yet more the results into social and economic benefits. One of the manifestations of these efforts could be a more intense participation and development of regional and European projects and programs in the field of tribology.

Additional public needs to be searched by the wider benefits from the research and by the necessity to attract increased public and private investments.

All these endeavors require a harder future work in the mutual cooperation of more Balkan countries, which, we hope, will be achieved during the next Greek mandate of management of the Balkan Tribological Association.