

**The 10-th Anniversary of the  
Establishment of the Faculty of Applied Sciences  
University Politehnica of Bucharest**

[October 10, 2015, Senate Hall, 10:00]

**Founders of the Faculty:**

**Prof. Dr. Eng. Ecaterina Andronescu - Rector,**  
**Prof. Dr. Constantin Udriște - Mathematics Department Director,**  
**Prof. Dr. Eng. Paul E. Sterian - Physics Department Director, Secretary of CNEAA.**

**Organizing Committee:**

Prof. Dr. Eng. Ecaterina Andronescu, Senate President (founder);  
Eng. Mihnea Costoiu, Rector;  
Prof. Dr. Emil Petrescu, Dean, Faculty of Applied Sciences;  
Prof. Dr. Mihai Postolache, Mathematics and Informatics Department Director;  
Prof. Dr. Mircea Olteanu, Mathematical Methods and Models Department Director;  
Senior Lecturer Dr. Romeo Bercia, Applied Mathematics Department Director;  
Prof. Dr. Gheorghe Căta-Danil, Physics Department Director;  
Prof. Emeritus Dr. Constantin Udriște (founder);  
Prof. Emeritus Dr. Eng. Paul Sterian (founder).

**Schedule:**

Opening event by the Dean of the Faculty (Prof. Dr. Emil Petrescu), Messages of officials and guests of honor (Speech of UPB Senate President, Speech of UPB Rector, Messages of present guests), Faculty presentation (Speech of departments directors, of the founding teachers, of students and graduates), Messages of the scientific community (submitted directly or through representatives or by the Dean of the Faculty), Closing time music (piano player - Senior Lecturer Dr. Wanda Morariu).

**Presidium** (see the hall from left to right, Photo 1):

Prof. Emeritus Dr. Constantin Udriște (founder);  
Acad. Dorel Zugrăvescu;  
Prof. Dr. Eng. Ecaterina Andronescu, Senate President (founder);  
Prof. Dr. Emil Petrescu, Dean, Faculty of Applied Sciences;  
Eng. Mihnea Costoiu, Rector;  
Acad. Ion Cuculescu;  
Prof. Emeritus Dr. Eng. Paul Sterian (founder).

**Special guests:** The participants of *The IX-th International Conference on Differential Geometry and Dynamical Systems*, 8-11 October 2015, University Politehnica of Bucharest – Romania.

**Talks:** Prof. Dr. Eng. Ecaterina Andronescu, Prof. Dr. Eng. Corneliu Burileanu, Prof. Dr. Radu Chișleag, Eng. Mihnea Costoiu, Acad. Ion Cuculescu, Prof. Dr. Josef Dorfmeister (Germany), Prof. Dr. Radu Gologan, Prof. Dr. Vladimir Gerdjikov (Bulgaria), Prof. Dr. Francisc Klepp (Germany), Prof. Dr. Massimiliano Ferrara, Prof. Dr. Cornelia Moțoc, Researcher Florin Munteanu, Prof. Dr. Emil Petrescu, Researcher Dr. Eng Dana Popescu, Prof. Dr. Vasile Preda, Prof. Dr. Octavian Stănășila, Prof. Dr. Paul Sterian, Prof. Dr. Ionel Țevy, Prof. Emeritus Dr. Constantin Udriște, Acad. Dr. Dorel Zugrăvescu.



Photo (FSA anniversary, Senate Hall, UPB)

## 1. Year 2005 - a "Big Bang": FSA was differently founded than the other faculties of UPB

### 1.1. What was before this "Big Bang"?

- Physical Engineering - specialization accredited at the Faculty of Electronics and Telecommunications;
- Mathematical Engineering - specialization provisionally authorized at the Faculty of Electrical Engineering;
- Master Program of Photonics - provisionally authorized at the Department of Physics,
- PhD Engineering Sciences: Optoelectronics, Technical Physics;
- Research Centers of Applied Physics and of Optical Engineering and Photonics at Department of Physics.

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All the efforts made by Prof. Emeritus Dr. Constantin Udriște (Director of the Department of Mathematics) and Prof. Dr. Ion Popescu (Director of the Department of Physics) for joining sections of Mathematical Engineering and Physical Engineering in a new faculty were not successful at the Polytechnic University. The last dossier establishing the Faculty of Applied Sciences was made by Prof. Dr. Constantin Udriște's small team, Department of Mathematics and Physics. The presentation and discussion of this dossier in front of the Rector, Prof. Dr. Eng. Ecaterina Andronescu, lasted one year, available until a final version and the proposed faculty structure were decided. At the meeting with the deans of faculties and directors of departments in UPB, our proposal to establish a new faculty was almost abolished by the interventions. Discussions in the Senate led to no significant result. Before the meeting of the Senate, Prof. Dr. Constantin Udriște discussed again with each of the deans who opposed, getting the promise they would abstain from discussion. So it was, and those who sustained the idea of the establishment of the new faculty, Prof. Dr. Eng. Ecaterina Andronescu, Prof. Dr. Eng. Ion Dumitrache, Prof. Dr. Eng. Dorin Cristescu, Prof. Dr. Eng. Anca Manolescu, Prof. Dr. Eng. Gheorghe Solomon, Prof. Dr. Ion Popescu, Prof. Dr. Eng. Paul Sterian, Prof. Dr. Constantin Udriște, Prof. Dr. Eng. Vasile Buzuloiu were the main supporters for the positive vote.

### 1.2 What caused the "Big Bang"?

- The Modification of the legislation according to the Bologna process;
- The Law of academic specializations;
- The reorganization of specializations at universities under CNEAA control;
- The reorganization of specializations in UPB;
- The reorganization of teaching mathematics and physics in UPB.

### 1.3 How did the "Big Bang" occur?

**Background:** Prof. Dr. Constantin Udriște (Director of the Department of Mathematics), Prof. Dr. Ion Popescu (Director of the Department of Physics) were the promoters and founders of the doctorate in Exact Sciences (Mathematics and Physics) from the University Politehnica of Bucharest, since 1999. For this purpose, the Department of Mathematics and Physics was organized, the function of director being annually alternative (Prof. Dr. Constantin Udriște, Prof. Dr. Ion Popescu).

**Master Programs:** Dynamic Systems, Geometry and Optimization; Models of Decision, Risk and Prognosis provisional authorization from the Department of Mathematics; Program Master of Photonics - provisional authorization from the Department of Physics.

#### Description of the "Big Bang" in terms of exact sciences, synthesized by the law: (-) \* (-) = (+)

- The first factor (-) expressed the Faculty of ETTI intention to turn the specialization IF into an electronic one, and the second factor (-) expressed the intention of the Faculty of Electrical Engineering to transform IM specialization in Computer Science in Electrical engineering;
- After discussions in two successive sessions of the Senate, the optimal solution was provided, namely the creation of a new faculty, the Faculty of Applied Sciences, the sign (+) showing the result of this process, solution which proved to be highly successful in European and global context.

#### A synthesis of the main contributions that marked the specificity of "Big Bang" in real time:

Prof. Ecaterina Andronescu, Rector, approved the establishment of the Faculty of Applied Sciences in Senate UPB and took the necessary stages at MEN, to include the new faculty in the Government Decision for the 2005-2006 academic year.

Prof. Constantin Udriște, Director of the Mathematics Department, has elaborated, very fast, the self-assessment file of the specialization "Mathematics and Informatics Applied in Engineering" resulted from the reorganization and after the endorsement at Senate Office, he has submitted it for approval to the CNEAA. Prof. Paul E. Sterian, Director of the Physics Department, Secretary CNEAA supported the approaches. CNEAA approved, after evaluation, the new structure of specializations including UPB specialization "Mathematics and Informatics Applied in Engineering" and submitted to the Ministry of National Education the new structure of academic specializations per country, resulted after reorganization (which also included the reorganization of colleges in long term specializations, according to the law) to be included in the Government Decision for the 2005-2006 academic year.

#### Local Actions:

- The structure into chairs of the new faculty was established (three Departments of Mathematics and one Department of Physics);
- The residence of the new faculty was established, mainly in the Department of Physics space;
- The direction of UPB allotted space and funds to the new faculty;
- The elections of the directing board were held in the new faculty etc.

### 1.4. The legal framework of organization and functioning of the Faculty of Applied Sciences

UPB was established and operates according to the actual Romanian laws. The normative acts which regulate its establishment, organization and functioning: Decree nr. 175/ 30.08.1948, H.G. nr. 568-/1995, the Order MEC nr. 7195/1992. The UPB activity takes place in accordance with the Education Act and the Teacher's Statute. The stipulations of the Academic Chart in UPB are according to the Romanian laws and the European principles of the higher education in Europe.

The year of the establishment of the Faculty of Applied Sciences was 2005. The normative acts regulating its creation are the Decision of Romanian Government nr. 916/11.08.2005 and the Decision of the UPB Senate from 24.03.2005.(Appendix II.1). The teachers and students from FSA apply these provisions in respect of education, missions and objectives undertaken by UPB through the University Charter. The studies, in the Faculty of Applied Sciences, take place within university cycles, in accordance with the Law 288/2004.

### **What followed the "Big Bang"?**

#### **The integration of the new UPB faculty, with staff and own goals**

##### **Examples of outstanding achievements:**

- New centers of research;
- Dissertations in Mathematics and Physics (Exact Sciences) at UPB;
- Admission based on competition;
- Master new specialties;
- Accreditation of the specialization in  
"Mathematics and Informatics Applied to Engineering";
- Organizing prestigious international conferences, etc.

**The Faculty of Applied Sciences, Engineers - 4 years.** The Faculty of Applied Sciences was founded in 2005, at the proposal of the Departments of Mathematics and Physics.

- First admission exams – 2005;
- Faculty trains engineers in the specializations (Cycle I –Bachelor degree studies):
  - (1) Mathematics and Informatics Applied to Engineering,
  - (2) Engineering Physicsthrough courses, four years, 240 European credits transferable;
- Admission calendar: July 17 to 21, 2005 - registration for the entrance examination, 24 and July 25, 2005 - Supporting the admission examination.

#### **Masters programs (Cycle II) proposed:**

- Dynamic Systems, Geometry and Optimization;
- Models of Decision, Risk and Forecasting;
- Modelling, Simulation and Numerical Calculus;
- Traffic Data Analysis and Protection;
- Optical Technologies;
- Photonics;
- Technical Physics;
- Materials Physics, High Resolution Microscopy;
- Nuclear Physics and Nuclear Techniques.

#### **Doctoral Studies (Cycle III):**

- Exact Sciences: Mathematics, Physics;
- Engineering Sciences: Optoelectronics, Technical Physics.

**Deans:** Prof. Dr. Constantin Udriste (2005-2010);  
Prof. Dr. Vasile Iftode (2010-2015);  
Prof. Dr. Emil Petrescu (2015-).

### **4. Instead of conclusions**

#### **10 years of activity of Faculty of Applied Sciences - successful integration into the academic universe!**

**4.1.** We wish long life, brilliant achievements and continuous affirmation to the Faculty of Applied Sciences, this new star shining on the Polytechnic sky. The same wishes to the students, and professors in the Faculty and in UPB, to the entire academic community, to increase the prestige of Romanian science and culture, nationally and worldwide!

#### **4.2. FSA message, to the sister Faculties from UPB**

*The stack of blue papers reminds us*

*How wide the sky of our dreams is.*

*The typing machine clicks the rhythm of a verse....*

*You reach the heights, we are in walking ! "*

(lyrics by G. Topârceanu)

**Prof. Emeritus Dr. Constantin Udriste**  
**Prof. Emeritus Dr. Eng. Paul Sterian**

10.10.2015

## ***Laudatio: 10 successful years of APPLIED SCIENCES in UPB***

It is said that behind each successful man there is a strong woman. *Mutatis mutandis*, behind any progress (masculine singular noun) of humanity there is more or less mathematics (feminine noun). In the same line of thought, there exists a book written by two French physicists, entitled "*Trente livres de mathématiques qui ont changé le monde*" (Thirty mathematical books that changed the world). Of course, this selection is somewhat subjective: there might be ten, or a hundred of books of this kind. Among the cornerstone cited specialists, we point out Archimedes, Galileo, Descartes, Pascal, Newton, Bernoulli, d'Alembert, Euler, Gauss, Lagrange, Fourier, Laplace, Riemann, Poincaré, Einstein. All these brilliant mathematicians made essential contributions in physics, chemistry and other fields of application of mathematics. They definitely managed to change the world. Their reflections on the world catalized the progress in Mathematics, and (as Galilei asserted) Mathematics allowed them to understand the physical world.

The collaboration between Mathematics and technical education is full of brilliant examples. At the famous *École Polytechnique*, Gaspard Monge, Augustin Cauchy, and, in our days, Laurent Schwartz, worked as teachers. A *valedictorian of the École des Mines in Paris* (sic) was Henri Poincaré. All the Nobel laureates in economics have a mathematics faculty in their *curriculum studiorum*. In Romanian higher education, there were illustrious mathematicians who taught at the Bucharest Polytechnic (which changed along time various names and forms of organization): Spiru Haret, David Emanuel (who taught 45 generations of students), Demetrius Pompeiu, Gheorghe Țițeica, Mikhail Ghermănescu, Nicholas Ciorănescu, Nicolae Teodorescu, and many others. In some Western European countries, in higher technical education, there exist institutes of applied sciences. For example, in France there are six so-called INSA (Institut National des Sciences Appliquées), the most important being that of Lyons, with the *EURINSA* extension, with which the UPB has important direct contact.

Going back in time for many years to those days when I came to UPB (after the Census and after the great earthquake of 1977), I remember that Mathematics Departments were regarded - at that time - only as service organization entities. The Department of Mathematics #1 was assigned, in terms of administration, to the Transportation faculty. It was the largest department of the faculty (about 60 people) but it had the smallest number of members in the faculty council. Subsequently, as a matter of fact, the Department had deans in two legislatures deputy deans.

After the '90s, along with the changes in Romanian education, the Departments of Mathematics and Physics from UPB became independent departments. Then a group of colleagues animated by Professor Constantin Udriște – the creator of F.A.S., and with the support of professor, then rector, Ecaterina Andronescu, saw the possibility of combining these departments into the Faculty of Applied Sciences, designed to train specialists to apply directly the theories of Mathematics and Physics in Engineering, Economics and Human Activities, using appropriate software means.

I have also taken part a bit in this emulation: following my suggestions, two disciplines (applications of real analysis, year III and forecasting mathematical elements) and the first year of the SDOMEF master group were introduced in the curriculum for a semester. I had the honor to be tenured professor for the first discipline since the beginning, until my retirement; as for the second discipline, I am still teaching the course.

**Prof. Dr. Ionel Țevy**

*10.10.2015*