



Prof. Dr. Eng. TIBERIU COLOSI

PERSONAL DATA

Born on September 29, 1933, in Petroșani.

Married, two children.

Spouse: Colosi Doina – Esca, PhD, pharmacist.

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EDUCATION AND SCIENTIFIC TITLES

Theoretical High School, Petroșani, 1952 – Baccalaureate.

Polytechnic Institute of Timișoara, Faculty of Electrical Engineering, graduated in 1957 with merit diploma.

PhD in Automation Engineering, 1972. Thesis defended at the Polytechnic Institute.

March 1, 1974 – September 1, 1975: Alexander von Humboldt Foundation fellow (Bonn, Germany), at the Institute for General and Theoretical Electrical Engineering, University of Erlangen–Nürnberg, Prof. Dr.-Ing. Rolf Unbehauen.

1990: Visiting scholar (4 months) of the Alexander von Humboldt Foundation, delivering lectures at the Technical Universities of Hanover, Karlsruhe, Darmstadt, Munich, Braunschweig, and Erlangen.

ACADEMIC AND RESEARCH POSITIONS

1957–1965: Energy dispatcher engineer in Valea Jiului; power plant operation engineer; Head of Technical Department; Head of Thermal Power Plant; research engineer in automation at the Valea Jiului Coal Combine.

1962–1965: Acting lecturer for drives and mining automation courses at the Mining Institute of Petroșani.

1965–1968: Teaching assistant in electronics and automation, Faculty of Electrical Engineering, Polytechnic Institute of Cluj-Napoca.

1968–1974: Lecturer in electronics and automation, Faculty of Electrical Engineering, Polytechnic Institute of Cluj-Napoca.

1974–1978: Associate Professor in automation, Faculty of Electrical Engineering, Polytechnic Institute of Cluj-Napoca.

1978–2003: Full Professor in automation, Faculty of Electrical Engineering and later Faculty of Automation and Computer Science, Technical University of Cluj-Napoca.

Since October 1, 2003: Consulting Professor, Faculty of Automation and Computer Science, Technical University of Cluj-Napoca.

Since 1990: PhD supervisor in Automatic Systems; supervised 15 completed and accredited PhD theses.

Since 1998: Member of 65 PhD thesis evaluation committees.

ADMINISTRATIVE POSITIONS IN HIGHER EDUCATION

1976–1985: Scientific Secretary of the Senate, Polytechnic Institute of Cluj-Napoca.

1979–1984: Head of Applied Automation Department, Faculty of Electrical Engineering, Polytechnic Institute of Cluj-Napoca.

1995–2000 and 2000–October 1, 2003: Head of Automation Department, Faculty of Automation and Computer Science, Technical University of Cluj-Napoca.

SCIENTIFIC FORUMS AND SOCIETIES

2002: Member of the Academy of Technical Sciences of Romania.

Since 1998: President of the Humboldt Club Transylvania.

DISTINCTIONS

2002: Honorary Professor Title, 'Politehnica' University.

2002: IEEE Computer Society – Certificate of Appreciation for Outstanding Service.

2004: IEEE Computer Society – Certificate of Appreciation for Outstanding Service.

TEACHING ACTIVITY

Author or co-author of 8 textbooks totaling 2,140 pages, covering Electronics and Automatic Control, Systems Theory and Control, Continuous Industrial Automation, Industrial Electronics (two volumes), Optimization Techniques (two volumes), Integrated Circuits.

Co-author of 6 laboratory manuals totaling 360 pages.

SCIENTIFIC ACTIVITY

The main direction of research was and is the development and use of a method (with a high degree of originality) of modeling and numerical simulation of linear or nonlinear processes, with concentrated or distributed parameters, with common applications in electrical engineering, thermal energy and chemistry. In this framework, I have published, as synthesis papers, the following three books:

- 1) Tiberiu Colosi, Steliana Codreanu, Ioan Nascu, Silviu Darie. "Numerical Modeling and Simulation of Dynamical Systems", 118 p. Cluj Science Book Publishing House, 1995.
- 2) Tiberiu Colosi, Paula Raica, Ioan Nascu, Steliana Codreanu, Eva Szakacs " Local Interactive Linearization Method, for Numerical Modeling and Simulation of Lumped and Distributed Parameters Processes ", 230 pages. Science Book Publishing House, Cluj, 1999.
- 3) Tiberiu Colosi, Mihai Abrudean, Eva Dulf, Ioan Nascu, Steliana Codreanu. " Method for Numerical Modeling and Simulation " 320 p. Mediamira Science Publisher Publishing House, Cluj-Napoca 2002.
- 4) Tiberiu Colosi, Mihail Abrudean, Eva Dulf, Mihaela Unguresan "Numerical Modelling and Simulation Method with Taylor Series, for Lumped and Distributed Parameters Processes", 165 pages. Mediamira Science Publisher, Cluj 2006.

The contractual research activity can be framed, for the period 1990-2000, in a number of 18 contracts, for which I was either responsible for the contract (until 1990) or contract director (after 1990). The main topics addressed refer to the numerical regulation of the temperature for metallurgical furnaces, the numerical regulation of the concentration for the depollution of domestic water, the modeling and numerical simulation of some categories of slow processes.

Most of the research papers in recent years are based either on direct numerical management (which has become classic), or on adaptive or robust management strategies, to which are associated – with specific weights – numerical modeling and simulation methods, linear and nonlinear processes with concentrated or distributed parameters. In this framework we have introduced a mathematical formalism – with a high degree of originality – called Local Interactive Linearization (LLI), which aims to separate the numerical solution, into a free component and a forced component, in the immediate vicinity of the pivotal moment (t_k).

As a result, the principle of superposition of effects becomes valid, favoring the use of a mathematical formalism common to the theory of linear systems, or time variants. The extension of LLI through the Taylor Series, for partial differential equations, contributes to a systemic and performance approach to numerical simulation. Currently I am concerned with the extension of numerical modeling and simulation, through a process based on Taylor series and Interactive Local Linearization.

SCIENTIFIC PAPERS

Published works 224

- **Books** (didactic and research): 14
- **130** Research Articles

1996; 1998; 2000; 2002; 2004 I was the main co-organizer of 5 Automatic Conferences in Cluj-Napoca, of which one National (AQ – 1996) and three International (AQ – 1998; AQ – 2000 and AQ – 2002). The papers of these conferences were held and published in English, totaling about 900 articles, included in 12 volumes, with over 5000 pages.