A Special Feature
Stalwarts of IJSIMR

Andrei Nicolaide

Professor, D.Sc.

Faculty of Electrical Engineering and Computer Science,

Department of Electrical Engineering and Applied Physics,

Transilvania University of Brasov,

Brasov, Romania.

Andrei Costin Nicolaide was born on the 1st of September 1933 in Bucharest (Romania). He finished with honours the high school in "Nicolae Balcescu College", Craiova (Romania) in 1951. After the university studies, he received the degree of Electrical Engineer with honours, from the Technical Institute of Craiova, Faculty of Electrotechnics (1956), with specialty in electrotechnics. He obtained the degree of 'Doctor of Engineering', from the Polytechnic Institute of Bucharest, in 1962. His doctoral thesis was devoted to the calculation of the parameters of synchronous machines important for transient phenomena. In 1974, he obtained the degree of 'Doctor of Sciences', also from the Polytechnic Institute of Bucharest . In the frame of his presented works, an important part was devoted to the Special and General Theory of Relativity and to the calculation of the Magnetohydrodynamic flow.

At the beginning of his scientific activity, he established the formula in closed form of the rise of temperature of a cylindrical iron rotor, rotating about its axis, when starting, from the angular zero speed up to the final constant value. Until then, this problem, which is also important for the starting of several types of synchronous machines, was solved only by graphical methods. Later, the mentioned formula was called by his name, in the book of several authors.

He has been full professor at the "Transilvania" University of Brasov (Romania) from 1969 till 2003, and consulting professor since 2004. His teaching activity includes several domains. He taught the Electromagnetic Field Theory, Theory of Relativity, Computer Programming, Numerical methods for field calculation and Magnetohydrodynamics (MHD).

Since 2002, he is a regular member of the Academy of Technical Sciences in Romania (corresponding member since 1999).In 1980, he received the Prize of the Romanian Academy for "his set of papers devoted to the development of numerical methods aiming the construction of electrical machines".

Within his scientific activity in MHD, he published in 1973, the paper: "Research of the characteristics of a linear magnetohydrodynamic direct current channel" in the journal Archiv für Elektrotechnik (now Electrical Engineering), Springer-Verlag, Berlin, 1973, in which he established, for the first time, the occurring formulae in a closed form, using elliptic functions and conformal transformations, till then, only series expansions were available.

In the domain of conformal transformation, he published in 1978 the paper "Conformal transformation using direct minimization methods", where he used a new method for determining the constants of the Schwarz-Christoffel formula, namely a non-linear optimization method with constraints, without calculating derivatives, and also prepared a computer program. It is worth

noting that the authors T.A. Driscoll and L.N. Trefethen, in their book "Schwarz-Christoffel Mapping", Cambridge University Press, Cambridge, 2002, emphasized the advantages of his algorithm. Recently, he extended the analysis of this domain by publishing the paper: "An Approach to Conformal Transformation Using Symbolic Language Facilities" ISRN Applied Mathematics, Volume 2012 (2012), Article ID 291942, 18 pages. In the domain of the General Theory of Relativity, he published the paper: "A new approach to the Divergence of a tensor and application to the Curvature Tensor in the general theory of relativity" for the 2010 International Conference of Applied and Engineering Mathematics, London, 30 June-2 July, 2010. In 2006, he published the paper: "Deriving the formula of the Sagnac effect by using the general theory of relativity", interesting because at the time, there was a doubt if this effect is or not in accordance with the theory of relativity. According his results, the effect is not in accordance with the Special Theory, but it is in accordance with the General Theory of Relativity.

He established an integral relation, by which an integral, of a certain type, over the closed surface of a right circular cylinder can be transformed into a sum of two terms, the first being no more an integral and the second being an integral only over the surface of two bases of the cylinder.

This relation permitted to obtain some fundamental relations of the magnetic quantities without resorting to physical considerations. In this case the starting integral is that of the formula of Biot-Savart-Laplace. It has been presented in 2008 in London, and developed in: A. NICOLAIDE, *A New Vector Analysis Approach to the Calculation of the Magnetic Field Strength of a Solenoid*. The chapter: Current Themes in Engineering Science 2008, Selected Presentations at the Congress on Engineering, AIP Conference Proceedings, Volume 1138, pp. 59-70 (2009) DOI/: 10.1063/4.315530, Melville, New York, 2009. Editor: Alexander M. Korsunsky, University of Oxford, Department of Engineering Science and Trinity College, Oxford, United Kingdom.

Also he published (IJSIMR, 2014) two papers devoted to the Galois Theory, in order to clarify and make accessible certain aspects less analyzed in literature.

The contributions he presented in a period of four years (2008-2011) to the International Conference of Applied and Engineering Mathematics, London, are included in his book "Electromagnetics: General Theory of the electromagnetic field, classical and relativistic approaches" Transilvania University Press, 2012.

Under his direction, 19 candidates obtained the degree of a doctor and worked in important positions for activities in research and development.

IJSIMR feels immensely happy for publishing his valuable articles and extends it's hearty best wishes to Prof. Andrei Costin Nicolaide.

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