

## CURRICULUM VITAE

I am born in Bucharest (Romania) on August 29, 1940. After finishing the “Gh. Sincai” secondary school (in Bucharest), I graduated in mathematics at the University of Bucharest (in 1962).

Between 1962 and 1964 I taught mathematics at a secondary school in Bucharest, and since 1964 I am scientific researcher (at present, honorary senior researcher) at the Institute of Mathematics of the Romanian Academy (IMAR) in Bucharest. Between 1968 and 1975 I was also the scientific secretary of IMAR, and between 1973 and 1975 I was – additionally – the scientific secretary of the Central Institute of Mathematics of Romania. Between 1975 and 1990 I was senior researcher at the Central Institute of Physics – Magurele, and between 1991 and 1993 I taught (in English – in the frame of TEMPUS Program) geometry at the Faculty of Mathematics of the University of Bucharest.

In 1971 I obtained the Ph.D. in Mathematics at IMAR with the Thesis entitled “Riemann spaces associated with some real Jordan algebras”.

I have studied – mainly – the properties of Riemannian spaces, making use of their algebraic descriptions (in terms of Jordan structures, especially). I published more than 40 papers (only 8 of them coauthored) and six books. My book [2] is mentioned in almost all books and important survey papers published after 1980, as well as in Encyclopaedia of Mathematical Sciences (Springer, 1995) at the pages 243 and 277. My book [5] – exhausted in two years – has very good reviews in Zentralblatt für Mathematik and Mathematical Reviews (see Zbl 107317014 and MR 1979748), and – concerning the applications to physics – it is more comprehensive than books published afterwards (in 2004 and 2005) written by famous mathematicians (K. McCrimmon and Y. Friedman), as leading experts in the field (W. Bertram and H. Upmeyer) remarked in their reviews on those books.

I have presented my personal results in (alphabetical order of cities): Ancona (Italy – 2005), Barcelona (Spain – 1998), Berlin East (1971), Bratislava (Czechoslovakia – 1969), Brno (Czechoslovakia – 1969), Budapest (Hungary – 1996) Cagliari (Italy – 1972, 1991 (two conferences)), Chisinau (Moldova Republic – 1993), Coruña (Spain – 1997), Dortmund (Germany – 2007), Firenze (Italy – 2005), Genova (Italy – 1994), Granada (Spain – 1991), Hagen (Germany – 1990), Istanbul (Turkey – 2009), Kaohsiung (Taiwan – 2006), Lecce (Italy – 2005), Leipzig (East Germany – 1971), Leuven (Belgium – 1993 (two conferences), 1998), Logroño (Spain – 2001), London (U.K. – 2001), Malaga (Spain – 1991, I was the first Romanian mathematician giving a conference at Malaga University), Marburg (Germany – 2007), Moskva (Soviet Union – 1966), München (Germany – 1995), Novosibirsk (Soviet Union – 1991), Oberwolfach (Germany – 1970, 1992), Olomouc (Czech Republic – 2007), Palermo (Italy – 2005 (two conferences)), Plovdiv (Bulgaria – 2006), Roma (Italy – 1991 (two conferences), 1994), Santiago de Compostela (Spain – 1997, 1999), Sofia (Bulgaria – 1963), Thessaloniki (Greece – 1992), Tjörnö (Sweden – 2010), Torino (Italy – 1972, 1991), Tübingen (Germany – 1990), Varna (Bulgaria – 1967), Xanthi (Greece – 1992), Zaragoza (Spain – 1991), as well as in many university cities of Romania.

I have obtained the following grants: one year CNR grant (Rome – Italy, 1971-1972), one year Alexander von Humboldt grant (Germany, for 1975-1976, but the Romanian authorities of that time have prevented me from this grant and only 15 years later – in 1990 – the new Romanian authorities have permitted me to benefit of a four-months exceptional grant in Hagen offered me by

Alexander von Humboldt Foundation instead of the above mentioned grant, because – in the meantime – I grew too old to be a regular Humboldt scholar), EEC three months grants (Leuven – Belgium & Genova – Italy, 1993-1994), two years Spanish-Romanian grant (Santiago de Compostela, 1999-2000), three years MEC-ANSTI-CNCSIS grant (2001-2003), three years CNCSIS grant (2006-2008), and now another three years CNCSIS grant (2009 – 2011).

I was the main organizer of two series of international mathematical meetings: ten WORKSHOPS on differential geometry and its applications (Bucharest (1993), Constanta (1995), Sibiu (1997), Brasov (1999), Timisoara (2001), Cluj-Napoca (2003), Deva (2005), Cluj-Napoca (2007), Iasi (2009), Constanta (2011)), and four German-Romanian SEMINARS on geometry (Sibiu (1997), Dortmund (2000), Cluj-Napoca (2003), Dortmund (2007)). These meetings were very useful for young Romanian geometers, offering them the possibility to meet important personalities over the world which attended these conferences as main invited speakers. More than 30 young Romanian geometers obtained summer schools, master, Ph.D. or postdoc grants in France, Germany, Italy, Spain, Switzerland, USA, and three important research agreements between Romanian and foreign universities were signed. The first four WORKSHOPS have contributed to the very good evaluation of IMAR (with the overall score 45/50) in the competition organized by European Commission – General Directorate for Research – in the frame of the Programme “Confirming of the International Role of Community Research” (Support for Centers of Excellence). Thus, in 2000, IMAR became Center of Excellence of European Union for the period March 2001 – February 2004.

Based on my talks given in the 1990s at the University "Ovidius" of Constantza and on my book [3], Eduard ASADURIAN (from the Univ. of Pitesti) developed in his Ph.D. Thesis (IMAR, January, 2001) a study of structure and representations of Jordan algebras (supervisor Prof. Mirela STEFANESCU). Then a book with this topic appeared (coauthored by ASADURIAN and STEFANESCU). In fact, after the second of the above mentioned WORKSHOPS (Constantza, 1995) the "Ovidius" University developed (and is still developing) a strong mathematical cooperation with IMAR (there are courses in Constantza given by members of IMAR, as well as part-time positions of them at "Ovidius" Univ.).

In 1998, I have initiated the Romanian-Belgian research agreement “New topics in differential geometry”, and I was the Romanian responsible person for the period 1998-2004.

I was recently invited (by an international staff) to organize topical sessions in the frame of two international conferences, namely: the session “Jordan structures in mathematical physics” (July 2012) in the frame of the conference QQQ in Tallinn (Estonia) – satellite conference of the European Congress of Mathematicians – see <http://www.agmp.eu/qqq/> - and the session “Jordan algebras and applications” (September 2012) in the frame of the conference AGMP in Brno (Czech Republic) – see <http://www.agmp.eu/brno12/>.

I was member in more than 30 Ph.D. Mathematics Commissions.

I am member of the Society of Romanian Mathematicians and of the American Mathematical Society, as well as one of the founders of the Balkan Society of Geometers. Since 1989 a short my biography is reported in “Who's who in the World” and since 1990 also in “Men of achievement”. I am member of the Alexander von Humboldt Club – Bucharest since its foundation. I am also member of the “Acad. Prof. Gh. VRANCEANU” Foundation – Bucharest.

# LIST OF BOOKS AND PAPERS

## I. Books

1. (with I. Popovici and A. Turtoi) Jordan and Lie simple gradings considered in differential geometry (in Romanian), 193 p., Ed. Acad. RSR, Bucuresti, 1971.
2. Jordan algebras with applications (Mimeographed), 170 pp., INCREST, Bucharest, 1979, ISSN 0250 3638.
3. Jordan structures with applications (Mimeographed), 495 pp., Institute of Mathematics, Bucharest, 1990, ISSN 0250 3638.
4. Jordan structures in geometry and physics, 181 pp., Quaderno dell'Universita "La Sapienza" di Roma, May, 2000.
5. Jordan structures in geometry and physics with an Appendix on Jordan structures in analysis, 201 pp., Ed. Acad. Romane, 2003, ISBN 973-27-0956-1.
6. Jordan structures in analysis, geometry and physics, 234 pp. Ed. Acad. Romane, 2009, ISBN 978-973-27-1775-2.

## II. Co-edited Proceedings

1. Proceedings of the Second International Workshop of Differential Geometry and its Applications (Constanta, Sept. 1995), 1995.
2. Proceedings of the Third International Workshop on Differential Geometry and its Applications and the First German-Romanian Seminar on Geometry (Sibiu, Sept. 1997), 1997.

## III. Academic papers

1. The structure of the exceptional simple group  $G_2$  (in Romanian), *Stud. Cerc. Mat.* **13** (1962), No. 4, 627 - 641.
2. Sur les représentations des algèbres  $A^p_{m,n}$ , *Rev. Roumaine Math. Pures et Appl.* **10** (1965), No. 9, 1403 - 1421.
3. Les représentations quasi-irréductibles des algèbres  $A^2_{m,n}$  dans des algèbres  $A^q_{m',n'}$ , *Rev. Roumaine Math. Pures et Appl.*, **10** (1965), No. 10, 1583 - 1591.
4. Les représentations quasi-irréductible des algèbres  $A^3_{m,n}$ , *Rev. Roumaine Math. Pures et Appl.*, **11** (1966), No. 7, 843 - 845.
5. Spaces with constant affine connection associated with the algebras  $A^p_{m,n}$  (in Romanian), *Stud. Cerc. Mat.*, **18** (1966), No. 10, 1545 - 1547.
6. Sur les congruences  $\infty$  cyclique du type  $(\omega)$  dont les nappes focales sont en correspondance pseudo-isométrique, *Rev. Roumaine Math. Pures et Appl.*, **12** (1967), No. 8, 1075 - 1078.
7. (with I. Popovici). Sur les représentations des algèbres de Jordan et leur interprétation géométrique, *Rev. Roumaine Math. Pures et Appl.*, **13** (1968), No. 3, 399 - 416.
8. (with I. Popovici). On representations of special Jordan algebras, *Rev. Roumaine Math. Pures et Appl.*, **13** (1968), No. 8, 1089 - 1100.
9. (with I. Popovici). Graduations maximales associatives simples quaternioniennes, *Rev. Roumaine Math. Pures et Appl.*, **15** (1970), No. 3, 359 - 366.
10. Géométrie différentielle sur les formes réelles de Jordan de type  $A_I$ , *Boll. Un. Mat. Ital.*, (1970), No. 4, 585 - 594.
11. L'étude des opérateurs infinitésimaux associées aux algèbres de Jordan simples, *An. Univ. Bucuresti, Mat.-Mec.*, **19** (1970), No. 2, 83 - 90.

12. Métriques sur les formes réelles de Jordan, *Rev. Roumaine Math. Pures et Appl.*, **15** (1970), No. 9, 1437 - 1444.
13. Sur les graduations spéciales réelles simples, *Rev. Roumaine Math. Pures et Appl.*, **16** (1971), No. 5, 691 - 700.
14. Riemannian spaces associated with some real Jordan algebras (in Romanian), Ph. D. Thesis, IMAR, 1971 (unpublished).
15. (with I. Popovici and A. Turtoi). Some maximal graduation classes and their Riemannian properties, *Scripta Fac. Sci. Nat. UJEP Brunensis, Arch. Math.*, **7** (1971), 1, 31 - 46.
16. Sulle strutture quaternionali grassmaniane, *Boll. Un. Mat. Ital.* (4), **10** (1974), 406 - 411.
17. On a space-time with spherical symmetry, *Simon Stevin, Wissen Natuurkunding Tijdschrift*, **48 Jaargang** (1974/1975), 97 - 106, Allevering III-IV (January-April 1975).
18. (with R. Rosca) On a Lorentzian manifold  $V_L^{2n+1}$  endowed a principal connection, *Revue de la Faculté des Sciences de l'Univ. d'Istanbul, Série Math. Pures et Appl.*, **41** (1975), 119 - 128.
19. (with I. Popovici). Some basic properties of rotation and Lorentz groups, 25 pp., 1977, (unpublished).
20. Introduction to the representation theory of finite groups (in Romanian), 53 pp., 1978 (unpublished).
21. Jordan structures in geometry, in *Proc. National Conference on Geometry and Topology* (Piatra Neamt, June 1983), 62 - 69, Iasi, 1984.
22. Jordan structures, Grassmann manifolds, and string theories, in *Proceedings of the National Conference on Geometry and Topology* (Timisoara, October 1989), 101 - 110, 1991.
23. Strutture di Jordan e applicazioni, Quaderni dell'Università "La Sapienza" di Roma, 40 pp., 1991.
24. On geometrical applications of Jordan algebras, in *Proceedings of the 22nd Conference of Differential Geometry and Topology* (Bucharest, September 1991), 153 - 164, Bucharest, 1991.
25. Jordan structures - a unifying framework for Barbilian planes and Differential geometry, in *Proceedings Internat. Workshop Diff. Geom. and its Appl.* (Bucharest, July, 1993), 183 - 189 (1993).
26. (with P. Truini) Quantum groups and Jordan structures, *Sci. Bull. Univ. Politehnica, Bucharest Ser. A*, **57 - 58** (1995), No. 1 - 4, 43 - 60.
27. The geometrical Barbilian's work from a modern point of view, *Balkan J. of Geom. and its Appl.* **1** (1996), No. 1, 31 - 36.
28. Recent advances and new open problems in the Jordan algebra approach to differential geometry, Preprint Inst. Math. Bucharest, 8/1996; Revised version 36/1996, 32 pp. (partially included in the book [4]).
29. Applications of Jordan structures to differential geometry and to physics (Recent advances and new open problems). Preprint Inst. Math. Bucharest 11/1998, 79 pp. (partially included in the book [4]).
30. Jordan algebras in ring geometries. Preprint Inst. Math. Bucharest 13/1999, 50 pp. (partially included in the book [4]).
31. Open problems arised from a Vranceanu's topic, *Bull. Math. Soc. Sc. Math. Roumanie*, **44(92)** (2001), No.1, 25 - 41.
32. Dynamical systems and Jordan structures, *Internat. J. Pure and Appl. Math.*, **35** (2007), No. 1, 127-146.
33. Jordan structures in mathematics and physics arXiv:1106.4415 v1 [math.DG] 22 Jun. 2011, 171 pp., its bibliography contains more than 1240 items.

#### IV. Research reports

1. Grassmann manifolds and Jordan algebras (in Romanian), 24 pp., Contract INCREST, Bucharest, 1980.

2. Algebraic aspects in quantum mechanics and quantum gravity, 25 pp., Contract INCREST, Bucharest, 1980.
3. Symmetric spaces investigated by means of Jordan algebras, 39 pp., Contract INCREST, Bucharest, 1981.
4. Applications of Jordan pairs and Jordan triple systems to differential geometry I, II, Contract INCREST, 32 pp., 23 pp., Bucharest, 1982.
5. Applications of Jordan algebras to projective geometry, 21 pp., Contract INCREST, 1983.
6. On two recent geometrical approaches in quantum mechanics, 10 pp., Contract INCREST, Bucharest, 1983.
7. New geometrical applications of Jordan structures, 24 pp., Contract INCREST, Bucharest, 1984.
8. On the geometrical properties of soliton equations, 9 pp., Contract IFTAR, Bucharest, 1984.
9. Applications of Jordan structures to the study of solitons, 14 pp., Contract INCREST, Bucharest, 1985.
10. On topologico-geometrical properties of the solutions of soliton equations, 9 pp., Contract IFTAR, Bucharest, 1985.
11. Applications of Jordan structures to Yang-Mills equations, 12 pp., Contract INCREST, Bucharest, 1986.
12. Applications of Jordan structures to gauge field equations, 10 pp., Contract INCREST, Bucharest, 1987.
13. Applications of Jordan structures to the supersymmetric extensions of Sato's model for solitons, 11 pp., Contract INCREST, Bucharest, 1988.
14. Algebraic structures and plasma physics (in Romanian), 7 pp., Contract IFTAR, Bucharest, 1988.
15. New mathematical models of the theory of solitons in plasma physics (in Romanian), 9 pp., Contract IFTAR, 1989.
16. Applications of Jordan structures to the multicomponent theory of solitons, 6 pp., Contract IFTAR, Bucharest, 1989.
17. Jordan structures in geometry and physics, 129 pp., Contract ANSTI, Bucharest, 1999 (preliminary version of the book [4]).
18. The Jordan structure method applied to differential geometry, 59 pp., ANSTI grant, 2000 (partially included in the book [5]).
19. The Jordan algebra method applied to ring geometries, 52 pp., ANSTI grant, 2001 (partially included in the book [5]).

## V. Didactic papers

1. On a tangent problem (in Romanian), *Gazeta Matematica* **69** (1964), No. 4, 131 - 133.
2. The angle of two straight lines (in Romanian), *Gazeta Matematica A*, **69** (1964), No. 6, 209 - 215.
3. About the domain of definition of functions (in Romanian), *Gazeta Matematica A*, **70** (1965), No. 1, 23 - 26.
4. About the teaching of functions (in Romanian), *Gazeta Matematica A*, **70** (1965), No. 1, 481 - 487.

## VI. Other papers

1. International Colloquim on global differential geometry (Bucharest, 1964), (in Romanian), *Gazeta Matematica A*, **69** (1964), No. 11, 434 - 436.

2. An important class of nonassociative structures: Jordan structures, *Gazeta Matematica si Metodica* **4** (1983), No. 3 - 4, 188 - 190.
3. Up-to-dateness of scientific research of Prof. Vranceanu and of his pupils (in Romanian), *Revista Fundatiei acad. prof. Gh. Vranceanu*, **2** (2001), No. 1 and No. 2.
4. (with M. Craioveanu and M. Puta). The 5<sup>th</sup> International Workshop on Differential Geometry and its Applications (in Romanian), *Revista Fundatiei Acad. Prof. Gh. Vranceanu*, **2** (2001), No. 2.
5. International Workshops and Seminars on Geometry, *Revista Fundatiei Acad. Prof. Gh. Vranceanu*, **5** (2004), No. 1.
6. Some History, in “*Recent Advances in Geometry and Topology*”, (Eds. D. Andrica and P. Blaga), pp. 7 - 8, Cluj University Press, 2004.
7. Romanian contributions to the study of Jordan structures and their applications, *Mitteilungen des Humboldt-Clubs Rumänian*, Bucharest, No. 7-8 (2004-2005), pp. 29-35.
8. The history of our workshop and seminars, in *Proc. 7<sup>th</sup> Workshop Diff. Geom. and its Appl.* (Deva, 2005), Cluj University Press, pp. 7-8.
9. The eighth international workshop on differential geometry and topology, *Proc. 8<sup>th</sup> Internat. Workshop Diff. Geom. and its Appl.* (Cluj-Napoca, 2007), Cluj University Press, 2008, pp. 8-9.
10. The 9<sup>th</sup> International Workshop on Differential Geometry and its Applications, GEOMETRY, Exploratory Workshop on “Differential Geometry and its Applications”, Iasi, September 2-4, 2009, pp. xi-xiii.
11. The 10<sup>th</sup> International Workshop on Differential Geometry and its Applications, Ovidius University, Constanta, August 26-30, 2011, (to appear).

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