

PROFESSOR ANTON DEKRÉT'S SEVENTIETH BIRTHDAY

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In September 2002 Professor RNDr. Anton Dekrét, DrSc., a distinguished Slovak mathematician celebrated with his friends his seventieth birthday.

Professor Anton Dekrét was born in a small settlement Dobroč, close to Čierny Balog. After finishing the basic school in Dobroč he was educated at Brezno (1943 - 1947) and Banská Bystrica Gymnaziums (1947 - 1951). He completed his further education at the Comenius University in Bratislava at the Faculty of Natural Sciences, specializing in the field of mathematics – projective geometry in 1955. After graduation his first work was as a teacher of mathematics at a secondary school (6 years) and then as a university teacher of mathematics at the Pedagogical College in Martin (1 year). From 1962 to 1973 he worked at the College of Transport and Communications in Žilina. In 1974 he moved to Zvolen where an Institute of Applied Mathematics was to be found at the College of Forest and Wood. Since 1998 Professor Dekrét has been working at the Department of Informatics of the Faculty of Natural Sciences at the Matthiae Belii University in Banská Bystrica.

Professor Dekrét has been from his graduation up to the present day constantly engaged in the teaching profession. His lectures and textbooks are known for accuracy, comprehension and clarity; therefore they are very popular with students. Professor Dekrét has been always trying to present mathematical knowledge to his students in a way for them to utilize it in a practical manner. Success in this approach can be clearly noted by the hundreds of his students who have taken up important posts in Slovak society.

The beginning of his scientific work can be traced back to his time at the College of Transport and Communications in Žilina. There he took an active part at the seminar on differential geometry at the Faculty of Technology, closely cooperating with Professor Hejný. He also formed a working relationship with the scientists at the Brno's school of differential geometry, represented especially by Professors Kolář and Kowalski. Having moved to Zvolen Professor Dekrét led seminars on differential geometry at the Department of Mathematics and Projective Geometry at the Faculty of Wood Technology. Also he intensified the collaboration with his colleagues in Brno especially with Professor Kolář and started scientific cooperation with the profile departments at the Faculty of Wood Technology. By his hard working, strong-willed-mind and enthusiasm he gained much respect, winning over

2000 Mathematics Subject Classification. 01A70.

Key words and phrases. Anton Dekrét, jubilee.

Received 1. 11. 2002; Accepted 16. 4. 2003

many of his colleagues into scientific work. The scientific activity at the Department of Mathematics and Projective Geometry and the cooperation with the profile departments achieved, under the influence of the activities of Professor Dekrét, a higher dimension.

The main fields of the scientific interest of Professor Dekrét are differential geometry of fibre spaces, applications of mathematics at modelling processes connected with the diffusion of water in wood. During last few years he has also devoted himself to the questions of utilizing differential geometry in robotics and control theory. The results he gained in differential geometry can be divided into following three groups:

- (1) Contributions to the theory of prolonged functors (properties of the canonical form and properties of the main connections on non-holonomic and semi-holonomic prolongations of the main fibre spaces);
- (2) Contributions to the theory of generalized connections on fibre spaces (coherences of various tensor fields with connections, covariant derivative of geometric objects) and especially on iterated tangent fibrations;
- (3) The list of connections naturally deduced from some geometrical objects (connections constructed from $(1,1)$ - forms on a tangent fibration, from vector fields on a tangent fibration and on a general fibre space, from differential equations of higher order on differential manifolds and their relations with Lagrangian and Hamiltonian formalism).

The results achieved in wood technology are the product of his cooperation with wood experts. The results deal particularly with modelling tensorial character of water motion and tension arising in wood during its drying process and methods of the calculation of diffusion coefficient. Professor Dekrét has published so far 44 scientific papers on differential geometry and 42 scientific papers on the application of mathematics in wood technology and in robotics.

Professor Dekrét does not limit his work only to the university. His activities in the Union of Slovak Mathematicians and Physicists, of which he has been a member since his university graduation, are also very significant. He has carried out various roles over the years including chairmanship of its branch in Zvolen. It is greatly to his credit that this branch was very active and successful. Professor Dekrét took part in the preparation, organization and leading many summer and winter schools and seminars on differential geometry along with many other meetings of mathematicians, especially from Žilina, Zvolen and Banská Bystrica. Partakers of these meetings remember them with pleasure as Professor Dekrét has always the skill to join successfully mathematical programs with sport and social activities. Participants could feel fully the truth of the proverb: "In a healthy body there is sound mind". Professor Dekrét is an excellent champion of this proverb. Not only in mathematics but also in favourite sport activities like mountain and cross-country-ski tours considerably prevail his excellent mind and physical condition. The Union of Slovak Mathematicians and Physicists has appreciated the meritorious work of Professor Dekrét by electing him an honorary member of the Union of Slovak Mathematicians and Physicists.

Tonko, allow me on behalf of all your friends, colleagues and students to wish you in the following years good health, a peaceful mind, numerous further valuable results in mathematics, complimented by many nice walks and tours in the beautiful Slovak nature.

Scientific papers on differential geometry

- [1] Dekrét A.: *Poznámka o T-páre komplexov*, Matematický časopis, 1967, 48-54.
- [2] Dekrét A.: *Poznámka k hyperbolickému páru komplexov priamok v P_3* , Acta Facultatis RN UC, Mathematica XV, 1967, 45-52.
- [3] Dekrét A.: *Poznámka k transversálnemu zobrazeniu medzi plochami v P_3* , Sborník prací VŠD a Výskumného ústavu dopravního, Žilina, 1968, č. 15, 57-67.
- [4] Dekrét A.: *K teórii T-páru komplexov priamok v P_3* , Matematický časopis 19, 1969, No 3, Žilina, 192-201.
- [5] Dekrét A.: *Poznámka k distribúcii variet v P_n* , Sborník prací VŠD a Výskumného ústavu dopravního, 1970, 34, 9-20.
- [6] Dekrét A.: *Note on the theory of T-pair of manifolds in the projective space P_n* , Matematický časopis 20, 1970, No 1, 38-48.
- [7] Dekrét A.: *On a pair of manifolds with connection*, Matematický časopis 22, 1972, No 2, 97-107.
- [8] Dekrét A.: *On canonical forms on non-holonomic and semi-holonomic prolongations on principal fibre bundles*, Czechoslovak Math. Journal 22, 1972, Praha, 653-662.
- [9] Dekrét A.: *On a pair of connections on a principal fibre bundle*, Matematický časopis 24, 1974, No 1, 59-68.
- [10] Dekrét A.: *The coordinate form of the composition of non-holonomic jets*, Práce a štúdie VŠD v Žiline, séria matematicko-fyzikálna, č. 1, 1974, 7-11.
- [11] Dekrét A.: *On the connections on the prolongations of principal fibre bundles*, Matematický časopis 24, 1975, No 3, 293-302.
- [12] Dekrét A.: *On horizontal structure on differentiable manifold*, Mathematica Slovaca 27, 1977, No 1, 25-32.
- [13] Dekrét A.: *On general connections and covariant derivative on fibre bundles*, Proceeding of Czechoslov. - GDR - Polish scientific School in Diff. Geometry, Sci. Comm., Pol. Ac. of Sc., 1977, 40-55.
- [14] Dekrét A.: *Horizontal structures on fibre manifolds*, Mathematica Slovaca 27, 1977, No 3, 257-265.
- [15] Dekrét A.: *O konexiách na fibrovaných priestoroch s grupoidom operátorov*, Zborník vedeckých prác DF VSLD Zvolen, Alfa 1979, 347-352.
- [16] Dekrét A.: *On bilinear structures on differentiable manifolds*, Archivum math., Fac. sci. nat. UJEP Brunensis, XV, 1979, 193-202.
- [17] Dekrét A.: *On forms and connections on fibre bundles*, Časopis pro pěstování matematiky, roč. 105, 1980, Praha, 73-80.
- [18] Dekrét A.: *On higher order point singularities of some geometric object fields*, Mathematica Slovaca, 300, 1980, No 2, 133-138.
- [19] Dekrét A.: *On quasi-Riemannian fiber manifolds*, Czechoslovak. Math. Journal, 31, 1981, 229-240.
- [20] Dekrét A.: *Prolongation of natural bundles*, Mathematica Slovaca 35, 1985, No 3, 243-249.
- [21] Dekrét A.: *On quasi-jets*, Časopis pro pěstování matematiky, 111, 1986, Praha, 345-352.
- [22] Dekrét A.: *On connections on the second iterated tangent bundle*, Archivum Mathematicum, Vol. 23, No 4, 1987, 215-230.

- [23] Dekrét A.: *On quasi-jets and connections*, Proceedings of the Conference on Differential Geometry and its Applications, Brno, 1987, pp. 91-100.
- [24] Dekrét A.: *Mechanical structures and connections*, Proceedings of the Conference on Differential Geometry and Applications, Dubrovnik, 1988, Novi Sad 1989, pp. 121-132.
- [25] Dekrét A., Vosmanská G.: *Natural transformations of 2-quasi-jets*, Archivum Mathematicum, Tom 276, 1991, pp. 155-160.
- [26] Dekrét A.: *Vector fields and connections on fibred manifolds*, Supplemento di Rendiconti del Circolo Matematico di Palermo, Serie 2-num. 22, 1989, 25-34.
- [27] Dekrét A.: *Vector fields and connections on TM*, Časopis pro pěstování matematiky, 115, 1990, No 4, 360-367.
- [28] Dekrét A.: *Ordinary differential equations on manifolds and connections*, Proceedings of Conference on Differential Geometry and its Applications, Brno, 1989, Word scientific, Singapore, 1990, pp. 27-32.
- [29] Dekrét A.: *Connections deduced from mechanical system of second order*, Proceedings of Colloquium on Differential Geometry in Eger, 1989, Math. Soc. Bolyai, Budapest, 1992, pp. 201-212.
- [30] Dekrét A.: *A property of connections of mechanical systems of higher order*, Mathematica Slovaca, 43, 1993, No 1, pp. 77-87.
- [31] Dekrét A.: *Natural connections of 1-forms on tangent bundles*, Proceedings of Conference on Differential Geometry and its Applications, Silesian University, Opava, 1993, pp. 265-271.
- [32] Dekrét A.: *(1,1)-forms and Connections on a vector bundle TM*, Acta Univ. M. Belii, Math., 1994, pp. 3-8.
- [33] Dekrét A.: *On almost complex structures on fibre bundles*, Acta Univesity M. Belii, Math. No 3, 1995, pp. 3-8.
- [34] Dekrét A.: *Almost complex structures and connections on TM*, Proceedings of Conference on Differential Geometry and its Applications, Brno, 1995, Masaryk. university, 1996, pp. 133-140.
- [35] Dekrét A.: *On non vertical linear (1,1)-tensor fields and connections on tangent bundles*, Acta University M. Belii Banská Bystrica, Math. No 4, 1996, pp. 17-23.
- [36] Dekrét A.: *On skew 2-projectable almost complex structures on TM*, Archivum Mathematicum, Tom 34, 1998, pp. 285-293.
- [37] Dekrét A.: *Connections induced by (1,1)-tensor fields on cotangent bundles*, Math. Bohemica, 123, 1998, No 3, 317-331.
- [38] Dekrét A.: *Lagrangeans on a manifold with a (1,1)-tensor field*, Acta University M. Belii Banská Bystrica, Math. No 6, 1998, pp. 3-13.
- [39] Dekrét A.: *On (1,1)-tensor fields on symplectic manifolds*, Archivum Mathematicum, Tom 35, 1999, No 4, 329-336.
- [40] Dekrét A., Bakša J.: *Poznámka ku grafike plôch v E_3* , Zborník príspevkov z konferencie s medzinárodnou účasťou „Informatika a informačné technológie“, Univer. M. Belii, 1999, pp. 187-191.
- [41] Dekrét A., Bakša J.: *Tangential prolongation of surfaces in E_3 -clasification of parametric nets*, Acta UMB, Math. No 8, 2000, pp. 3-9.
- [42] Dekrét A.: *On applications of the tangential prolongation of vector fields*, Acta oeconomica No 6, Ekonomická fakulta UMB, Banská Bystrica, 2000, pp. 3-9.
- [43] Dekrét A., Bakša J.: *Applications of line objects in robotics*, Acta Univ. M. Belii, 9(2002), pp. 29-42.

- [44] Dekrét A.: *On vertical accessibility of control systems on fibre manifolds*, Studies of the University of Zilina, Mathematical Series, Vol. 15 (2002), 1-10.

Scientific papers on the application of mathematics in wood technology

- [1] Dekrét A.: *Poznámka k metodike výpočtu tepelných strát v potrubí*, Zborník vedeckých prác DF VŠLD Zvolen, ALFA 1977, ss. 115-123.
- [2] Dekrét A., Regináč L.: *Anizotropia dreva vzhľadom na jeho dendrometrickú štruktúru*, Zborník vedeckých prác DF VŠLD Zvolen, ALFA 1979, ss. 79-96.
- [3] Dekrét A., Husárik F., Regináč L.: *Poznámka k výpočtu kubatúry výrezov*, Zborník vedeckých prác DF VŠLD Zvolen, 1979, ss. 113-125.
- [4] Dekrét A., Babiak M., Regináč L.: *O aproximácii cylindrickej ortotropie pri amočiarou ortotropiou*, Zborník z vedeckej konferencie „25 rokov VŠLD vo Zvolene”, VŠLD Zvolen, 1977, ss. 55-65.
- [5] Dekrét A., Kurjatko S.: *Tenzoriálnosť difúzie vody v prírodnom dreve*, Zborník vedeckých prác DF VŠLD vo Zvolene, ALFA 1980, ss. 171-176.
- [6] Kurjatko S., Dekrét A.: *Preverenie tenzorového charakteru difúzie vlhkosti v dreve*, Zborník z vedeckej konferencie „3. Meždunarodnyj simpozium - Fundamentalnye isledovanija drevesiny”, Dresden, 1980, 126-131.
- [7] Požgaj A., Dekrét A.: *Model deformácie dreva*, Zborník z vedeckej konferencie „3. Meždunarodnyj simpozium - Fundamentalnye isledovanija drevesiny”, Dresden, 1980, ss. 203-212.
- [8] Dekrét A., Kurjatko S.: *Overenie tenzorového charakteru difúzie vodných pár v smrekovom dreve*, Drevársky výskum, 1981, XXVI, Zväzok 2, ss. 57-63.
- [9] Dekrét A., Kurjatko S.: *Povrchové podmienky pri použití 2. Fickovho zákona*, Zborník z medzinárodnej vedeckej konferencie VŠLD, Zvolen, 1982, ss. 35-42.
- [10] Trebula P., Dekrét A.: *Vákuové sušenie agátového dreva*, Zborník z medzinárodnej vedeckej konferencie VŠLD, Zvolen, 1982, ss. 266-275.
- [11] Trebula P., Dekrét A.: *Vakuumtrocknung von Robinienholzes*, Holzindustrie, 4, 1983, 115-116.
- [12] Trebula P., Dekrét A.: *Vákuové sušenie hrabového dreva s konvekčným ohrevom*, Drevársky výskum, roč. 28, No 3-4, 1983, Bratislava, ss. 63-73.
- [13] Trebula P., Dekrét A.: *Vákuové sušenie agátového dreva s konvekčným ohrevom*, Zborník prác konferencie „Sušenie dreva, vývoj sušiarenských zariadení, riadenie procesov dreva z hľadiska energetickej náročnosti, SDVU, Bratislava, 1983, 182-187.
- [14] Trebula P., Dekrét A.: *Vakuumtrocknung von Hainbuchenholz*, Holztechnologie, Wissenschaftlich-technische Zeitschrift für die Holzverarbeitende Industrie, 1984, Januar/Februar, 20-22.
- [15] Dekrét A., Kurjatko S.: *O povrchových podmienkach pri difúzii vodných pár v dreve*, Drevársky výskum, zv. 2, 1986, ss. 69-80.
- [16] Dekrét A., Trebula P.: *Vákuové sušenie smrekového dreva s konvekčným ohrevom*, Zborník vedeckých prác DF VŠLD, 1985/86, ss. 223-231.
- [17] Trebula P., Dekrét A.: *Vákuové sušenie hrabového dreva s kontaktným ohrevom*, Drevársky výskum, zväzok 110, 1986, SDVU Bratislava, 47-59.
- [18] Trebula P., Dekrét A.: *Modeli na optimana na vakumno izsušavane na bičenni materialii s kontaktno nagrethane*, Naučno-techničeska konferencija, Plovdiv, 1986.
- [19] Trebula P., Dekrét A.: *Technologiczne cechy podcisnieviovogo suszenia i modelovanie tego procesu*, Przemysl drzewny, No 11, 1987, 19-21.

- [20] Trebula P., Dekrét A.: *Vákuové sušenie reziva*, Vedecké aktuality VŠLD Zvolen, 1987, ss. 74.
- [21] Dekrét A., Trebula P.: *Stanovenie vnútorných napätí pri jednosmernom sušení dreva*, Zborník referátov medzinárodnej vedeckej konferencie, Sekcia 4, VŠLD Zvolen, 1987, ss. 81-86.
- [22] Dekrét A., Tebula P.: *On a model of internal stresses in drying wood*, Zborník referátov vedeckého seminára „Modelovanie-kvalita, ekonomika procesov sušenia dreva”, VŠLD Zvolen - TU Drážd'any, Zvolen 1988, ss. 36-42.
- [23] Dekrét A., Trebula P.: *Napätia v procese sušenia dreva*, Vedecké pedagogické aktuality 5, 1989, VŠLD Zvolen, ss. 61.
- [24] Dekrét A.: *On the diffusion coefficient in wood*, Proceedings of the symposium on „The latest knowledge in the sphere of structure an physics of wood”, VŠLD Zvolen 1990, pp. 199-202.
- [25] Dekrét A., Vacek V.: *Poznámka k Stammovej teórii viazanej vody v dreve*, Zborník vedeckých prác DF VŠLD vo Zvolene, ALFA, 1991, ss. 51-60.
- [26] Dekrét A., Trebula P.: *Modelovanie objemových síl pre napätia vznikajúce v sušenom dreve*, Zborník 8. medzinárodnej sušiarenskej konferencie, Karlove Vary, 1991, ss. 99-102.
- [27] Dekrét A., Vacek V.: *Odhad a predikcia napätí v procese sušenia dreva*, Zborník z medzinárodnej konferencie „Les, drevo, ekológia”, sekcia „Wood structure properties”, TU Zvolen, 1992, pp. 261-252.
- [28] Dekrét A., Bodnár F.: *Estimations of internal stresse in drying wood by variational principles*, Proceedings of international conference „Vacuum drying of wood 93”, TU Zvolen, 1993, pp. 92-99.
- [29] Dekrét A., Bodnár F.: *On internal stresses in drying wood*, Internationales Wissenschaftliches Symposium „Theorie und Praxis des Vakuum Schnittholztrocknung”, TU Zvolen, 1993, ss. 61-66.
- [30] Dekrét A.: *Estimations of the average moisture content and temperature of wood in the vacuum drier with radiant heating*, Internationales Wissenschaftliches Symposium „Theorie und Praxis des Vakuum Schnittholztrocknung”, TU Zvolen, 1993, ss. 22-25.
- [31] Dekrét A., Bodnár F.: *Modeling of stresses in drying wood*, Proceedings of the 2-d international symposium „Wood structure and properties”, 1994, TU Zvolen, 1995, pp. 91-96.
- [32] Dekrét A., Vacek V.: *On moisture content distribution in drying board*, Proceedings of the international Conference „Vacuum drying of wood 95”, TU Zvolen, 1995, pp. 62-65.
- [33] Dekrét A., Vacek V.: *Another method of the estimation of internal stresses in drying wood*, Proceedings of the international Conference „Vacuum drying of wood 95”, TU Zvolen, 1995, pp. 66-72.
- [34] Dekrét A.: *Možnosti modelovania vzťahu „napätie-deformácia” v sušenom dreve*, Zborník 1. Sympózia „Interakcia dreva s rôznymi formami energie”, TU Zvolen, 1996, pp. 115-119.
- [35] Dekrét A., Trebula P.: *Niektoré teoretické problémy sušenia dreva*, Vedecké štúdie, 1997, TU Zvolen, 1997, ss. 58.
- [36] Trebula P., Klement I., Dekrét A.: *Beach wood drying with the microwave heating*, Acta Facultatis Xylogologiae Zvolen, XXXIX, 1997, pp. 87-93.
- [37] Dekrét: *Poznámka o modelovaní niektorých javov v sušenej doske*, Zborník z

medzinárodnej vedeckej konferencie „Les-Drevo-Životné prostredie 97”, ss. 139-144.

- [38] Trebula P., Dekrét A.: *K niektorým problémom kontaktného sušenia*, Vedecké štúdie TU Zvolen, 12/1998/ A, TU Zvolen, 1999, pp. 56.
- [39] Dekrét A., Trebula P.: *Poznámka k teplotným podmienkam v dreve pri kontaktnom sušení*, Acta Facultatis Xylogologiae, TU Zvolen, XXXX, 1998, ss. 43-49.
- [40] Dekrét A., Trebula P.: *O jednom odhade závislosti difúzneho koeficienta na vlhkosti a teplote*, Acta Facultatis Xylogologiae, XXXXI, 1999, TU Zvolen, pp. 59-65.
- [41] Dekrét A., Pajtašová M.: *Elastická zložka deformácie v sušenom dreve*, 2. vedecké sympóziu Interakcia dreva s rôznymi formami energie, TU Zvolen, 2000, pp. 33-36.
- [42] Klement I., Trebula P., Dekrét A., Kačík F.: *Vplyv teplotných a vlhkostných polív hrabovom dreve na jeho fyziká lne a chemické zmeny*. Vedecké štúdie, Zvolen TU 10/2001/A, ss. 59.

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