

IN MEMORIAM GÁBOR RÉVÉSZ

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Dr. Gábor Révész, the youngest member of the Editorial Board of the journal *Mathematica Pannonica*, passed away unexpected because of a hearth-attack, on June 29, 1997 in Budapest. He was born on May 31, 1954 in Budapest, and here he began his grammar school. After having finished the Secondary School “Fazekas Mihály” in 1972, he studied two years at the University of Economics in Budapest.

He left for West Europe in 1974; after a short stay in Paris he went over to England. He resumed his university studies at the Mathematical Section of the London School of Economics and Political Science. There the Senate conferred him the degree of Bachelor of Science in 1978, and at the same University he got the degree of Doctor of Philosophy in 1981 as a student of Professor P. M. Cohn. He began his academic activity in the Bedford College as a visiting lecturer in the 1981–82 Academic Year. In 1982–84 he continued his activity as a research fellow at the London School of Economics and Political Science. He spent half of this period in West-Berlin as a fellow of the University. Between 1984–87 he was a visiting assistant professor in the States, at the University of Kansas.

As the pressure of the dictatorship back home in Hungary lowered, called by his family and homeland, he returned to the country, he married and became the father of a son. He continued his career at the Mathematical Institute of the University of Miskolc in autumn 1987 in that time directed by the author of these lines. Here he taught courses “Higher Mathematics” and “Linear Algebra” on a high level and besides his intensive scientific activity he contributed a lot to reorganize

the scientific activity of the Institute. The Institute benefited of his British and American relations and the experience gained abroad. He was an associated professor when, due to financial restrictions, he was forced to leave the University in 1995. He restarted his activity — very successfully — in the area of economics.

Because of his untimely and unexpected death his wish to come back to the University life is for always unfulfilled.

Now I turn to the short description of the **scientific work** of G. Révész.

The results of his doctoral thesis have been published in [2], [3] and [4].

Let R be a ring and Σ a set of square matrices over R and consider the universal Σ -inverting ring R_Σ . The set $\hat{\Sigma}$ of all matrices over R which become invertible over R_Σ is a monoid containing Σ . Denote by $A(\hat{\Sigma})$ the universal abelian group of $\hat{\Sigma}$. G. Révész proves in [1] that if R_Σ is weakly finite and the natural map $\lambda : R \rightarrow R_\Sigma$ is rank-preserving, then the induced map $\bar{\lambda} : A(\hat{\Sigma}) \rightarrow K_1(R_\Sigma)$ is an isomorphism. When R is a Sylvester domain with universal field of fractions U , this leads to an explicit expression for $K_1(U)$.

If R is a ring with unity, then an epic R -field is a field K together with a homomorphism $f : R \rightarrow K$ such that $f(R)$ generates K . Révész gives in [3] necessary and sufficient conditions in terms of matrix cones for

- (i) an epic R -field to be orderable,
- (ii) an ordering of R to be extendable to a field of fractions of R and
- (iii) for such an extension to be unique.

He presents in [4] a way of obtaining the universal (skew) field U of fractions for certain free rings. Following Amitsur he presents U as a subfield of an ultrapower of a field, using in the construction P. M. Cohn's specialization lemma.

Let F be the free group on a set X . In [6] various ways of full ordering F are considered, starting with a full-order \leq of the free monoid T on X and then showing that if \leq extends to a suitable epimorphic image of F then \leq extends to F itself.

Let S be a totally ordered semigroup which is positively ordered (that is $ax \geq a$, $xa > a$ for all x, a). Révész proves in [8] that if S is generated by a well-ordered subset, then S is itself well-ordered.

In 1993 together with J. Szigeti and Zs. Tuza they introduced in [9] the notion of Eulerian polynomial identities of matrices, and proved a generalization of the famous Amitsur–Levitzki Theorem. Their construction gives a wide class of polynomial identities of matrices over commutative rings, and became a fruitful source for further research in recent years (see for ex. [10], [11] and [12].)

Publications of Gábor Révész

- (1) Universal field of fractions; their orderings and determinants, Ph. D. Thesis, London, 1981.
- (2) On the abelianized multiplicative group of universal fields of fractions, *J. of Pure and Applied Algebra* **27/3** (1983), 227–297.
- (3) Ordering epic R -fields, *Manuscripta Mathematica* **44** (1983), 109–130.
- (4) On a construction of the universal field of fractions of a free algebra, *Mathematika* **31/2** (1984), 227–233.
- (5) Universal properties of generators of a variety: groups and skew fields, European Summer Meeting of the Association for Symbolic Logic (Paris, 1985) in *J. of Symbolic Logic* **52/1** (1987), 340.
- (6) Full orders on free groups, Algebra and Order, Proc. First. Int. Symp. Ordered Algebraic Structures, Luminy–Marseille, 1984.
- (7) A simple proof of Vinogradov’s Theorem on the orderability of the free product of 0-groups, *Czech. J. of Math.* **37/2** (1987), 310–312.
- (8) When is a total ordering of a semigroup a well ordering? *Semigroup Forum* **41** (1990), 123–126.
- (9) Eulerian polynomial identities on matrix rings (with J. Szigeti and Zs. Tuza), *J. of Algebra* **161/1** (1993), 90–101.
- (10) Eulerian trace identities (with J. Szigeti), *Discrete Mathematics* **147** (1995), 313–319.
- (11) Identities of symmetric and skew-symmetric matrices in characteristic p (with J. Szigeti), *Rend. del Circolo Mat. di Palermo (Serie II)* **44** (1995), 94–106.

- (12) Capelli polynomials, almost permutation matrices and sparse Eulerian graphs (with A. Lee, J. Szigeti and Zs. Tuza), to appear in *Discrete Mathematics*.