

Editorial note

A special issue in honor of Professor Tudor Zamfirescu

by LIVIU ORNEA, COSTIN VÎLCU and CAROL T. ZAMFIRESCU

Tudor Zamfirescu, *Zamfi*, is eighty! Who would believe it when seeing him as curious and productive as always, choosing with the same infallible taste his problems? Because Zamfi, indeed, always liked problems, not theories – and has, of course, a theory explaining it.

According to this choice, his mathematics is a wealth of beautiful and unexpected analytical, geometric, and combinatorial properties of objects that we others contemplate with ingenuous eyes. His style, imposed to his collaborators too, is a lesson of concise clarity, with no compromise – which is unusual for someone with his deep geometric intuition.

It is difficult to singularize some of his results: it can only be a sample of our preferences.

The variety of his contributions to geometry is best illustrated by titles of his articles. Tudor showed that *Ghosts are scarce*, *Most convex mirrors are magic*, and pointed out *Too long shadow boundaries*. He studied *Reducibility of convex bodies*, *Points on infinitely many normals to convex surfaces*, *Double normals of most convex bodies*, *Curvature properties of typical convex surfaces*, and *Acute triangulations*. Zamfi was interested in *Extreme points of the distance function on convex surfaces*, and found out *Many endpoints and few interior points of geodesics*, and *Long geodesics on convex surfaces*. He proved that *Few Alexandrov Surfaces are Riemann*, *Every point is critical*, and then asked *With respect to whom are you critical?* Tudor wrote about *Right convexity*, *Selfishness of convex bodies*, and *Generous Sets*.

In combinatorics and graph theory he has made important and impactful contributions, for instance concerning longest paths and longest cycles in graphs. We want to emphasise one of his particularly inventive contributions, dedicated to his father, who also drew the figures for this particular article. Therein, Zamfi describes graphs with interesting Hamiltonian properties; one of them, a cubic 3-connected planar graph that is not traceable, is to this day the smallest such graph that we know of, and thus a world record holder. If you would like to see this graph, you can of course have a look at the 1980 paper, or come visit Zamfi at his home in Bucharest: there you can find the graph, crafted by a friend of the family, in maple and walnut wood.

In analysis, Tudor's contributions include *A generic view on the theorems of Brouwer and Schauder*, *Fix point theorems in metric spaces*, and descriptions of *Typical monotone continuous functions* and *The strange aspect of most compacta*.

Useless as it is, because already the results speak for themselves, let us mention but a few of the excellent journals which hosted his more than 230 papers up to now: **Advances in Mathematics**, **Inventiones Mathematicae**, **Israel Journal of Mathematics**, **Journal of Combinatorial Theory Series B**, **Journal of Graph Theory**, **Journal of the London Mathematical Society**, **Journal für die reine und angewandte Mathematik**, **L'Enseignement Mathématique**, **Mathematica Scandinavica**, **Mathema-**

tische Annalen, Mathematische Zeitschrift, Pacific Journal of Mathematics, Proceedings of the American Mathematical Society, Proceedings of the London Mathematical Society, Topology, Transactions of the American Mathematical Society.

Zamfi always viewed mathematics as a social enterprise too. His long list of collaborators from many countries proves it: the satisfaction of understanding and doing mathematics is for him a pleasure to communicate and share. This probably also has to do with his sense of friendship and joy of gathering people around, illustrated by the many conferences he (co-)organized. A special role plays the series started in Dortmund in 1984, in the “Hilbert space”, and to end in Bucharest in 2024: fifteen editions, covering mainly convexity, geometry, and discrete mathematics, and gathering illustrious mathematicians.

Last but not least, Zamfi has 27 pupils with published research, 13 of which are mathematical descendants: 5 at Universität Dortmund, Germany, 5 at Abdus Salam School of Mathematical Sciences GC University, Pakistan, and 3 at Hebei Normal University, China. The list is open.

Many happy returns to the day, Tudor!