

A TRIBUTE TO W. G. NOWAK FOR HIS STRONG SUPPORT OF THE UNIFORM DISTRIBUTION THEORY JOURNAL

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Dedicated to Werner Georg Nowak on the occasion of his 70th birthday

This journal was founded 2006 following an initiative of Oto Strauch and hosted by the Slovak Academy of Sciences. Werner Georg Nowak was managing editor of the Uniform Distribution Theory Journal from Volume 5(2), 2010 to Volume 13(2), 2018. He did this duty very carefully jointly with his former PhD-student, friend and coauthor Manfred Kühleitner (1967 - 2022). An obituary on Manfred Kühleitner was published in this journal [1]. Georg could convince his university (BOKU Vienna) to give substantial financial support for the publication of the UDT Journal.

I personally know Georg for more than 50 years. We met as students in basic analysis and linear algebra classes, and later in number theory courses of our common academic teacher Edmund Hlawka. We both were attracted by problems from analytic number theory and Georg specialized in “lattice point counting” in asymptotically large domains. His PhD thesis is devoted to the asymptotic analysis of the number of integer lattice points (x, y) in planar domains such as $x^n + y^m \leq R$, where $R \rightarrow \infty$. His approach uses methods from uniform distribution theory, for instance the well-known Erdős-Turán inequality. In particular, this method works also in the special case $m = n = 2$, i.e. for the classical Gauss circle problem. This yields an elegant and short proof of the well-known result of Sierpinski. I remember when Georg presented his results during a meeting with the Hungarian mathematician Imre Katai in Vienna. It was in the early 1980’s when it became easier to travel between Austria and Hungary. At this time Vera Turán-Sós and Edmund Hlawka started a regular joint seminar of the number theory groups in Budapest and Vienna. This seminar was very important for us young Austrian and Hungarian mathematicians and we met twice a year in Vienna and Budapest. Usually, I drove my car to Budapest, Georg and Edmund Hlawka and his wife Rosa Hlawka were passengers. Sometimes Harald Niederreiter and Johannes Schoißengeier joined us. At that time there was no highway between Vienna and Budapest and the border control was quite complicated. Thus, the car ride took about 5 hours, and usually we stopped in Győr to have lunch, where we often had interesting mathematical discussions. This seminar really was the initial point of a long-standing regular cooperation between number theory groups in Hungary (Budapest, Debrecen, Eger, Sopron) and Austria (Vienna, Graz, Salzburg, Linz, Leoben).

Georg Nowak received his PhD (“sub auspiciis praesidentis”) at the University of Vienna in the year 1979. As a student he was mainly influenced by the two senior professors Edmund Hlawka and Hans Reiter and by younger members of the department such as Johannes Schoißengeier and

Harald Rindler. Later Rindler became dean and it is his merit that the institute now has more than 200 members (compared to about 20 when we were students there). In December 1979 Georg started as a lecturer at the BOKU Vienna (University of Agriculture and Natural Resources). The position was split into two parts, I held the second part before being appointed at TU Wien in March 1980. At that time Karl Prachar was head of the Mathematical Institute of the BOKU and Georg became a full-time faculty member on different positions until his retirement 2022. Finally, he was promoted to a full professor as the successor of Prachar. Karl Prachar was a highly respected number theorist who has written a famous monograph on prime numbers. So, Georg continued the tradition in analytic number theory at BOKU. As the successor of Prachar he was very much involved in teaching and re-organizing the mathematics education for BOKU students. Very soon Georg Nowak received his habilitation at the University of Vienna, where he also gave lectures for students. He built up an internationally visible research group at BOKU and he influenced several young mathematicians at that time. Here I only want to mention Manfred Kühleitner and Wolfgang Müller, who became a professor at TU Graz. Georg organized a regular number theory seminar at BOKU which was a forum and meeting point for number-theorists in Vienna.

Georg Nowak has various coauthors all over the world. In particular I want to mention Ekkehard Krätzel (9 joint papers) who was often visiting Vienna, and he was really a friend of Georg and his family. Georg's most frequently cited paper is an important survey article jointly with A. Ivic, E. Krätzel and M. Kühleitner. In the 1990's he had very good contacts to mathematicians in Canada and Japan. Here I only want to mention his cooperation with Armel Mercier, for instance on the divisor problem for polynomials or on sums

$$\sum g(n)\{xn^{-\alpha}\}^m.$$

At that time, he often attended the Canadian Number Theory Conference and he also travelled to Japan where he had good contacts to Shigeru Kanemitsu. In the last two decades Georg reduced travelling very much and he attended conferences only close to Austria. In particular, he often attended Czech and Slovak Number Theory Conferences, which later became the Central European Number Theory Conferences (CENT, initiated by K. Györy). At these conferences we always had stimulating discussions (in particular I remember many contributions of A. Schinzel) and hikes in the Tatra mountains. He also used these conferences for meetings with the editors and founders of the UDT Journal (O. Strauch, K. Nemoga, V. Baláž, S. Porubsky) and in 2010 he became managing editor. This was an important service to the scientific community. A few years after the start of the UDT Journal regular conferences on uniform distribution theory were organized. These conferences became important meeting points for mathematicians interested in equidistribution problems and related fields. The first one was organized by V. Baláž and P. Liardet at CIRM (2008) in Luminy (France) and in 2026 there will be the 8th conference organized by F. Pausinger in Lisbon (Portugal).

As I have mentioned above, the list of Georg's coauthors is quite long and contains very well-known number theorists such as Trevor Wooley or Florian Luca. However, his most frequent coauthor is his friend Manfred Kühleitner with 11 joint papers. I do not discuss this important work on arithmetic functions and related topics, since this was done in the quite recent obituary on Kühleitner. I want to say here that Georg (who also became chronically sick at that time) was really shocked when Manfred passed away a few years ago. Around that time Georg stopped publishing papers.

Furthermore, I want to mention his cooperation with Wolfgang Müller (7 joint papers). These papers are devoted mainly to the asymptotic study of arithmetic functions and to planar lattice point problems. The starting point of this cooperation was Müller's PhD thesis (Georg was a kind of mentor) and a temporary appointment of Müller at BOKU. I personally have 5 joint papers with

Georg. In these papers metric estimates for the discrepancy of sequences of powers of matrices and related objects are established. We started this cooperation when each of us held half of a teaching position at BOKU.

Last but not least I want to mention that Georg was a very successful teacher for thousands of BOKU students until his retirement. He also got interested in mathematical problems in the life sciences and he even published papers on biological and agricultural models. Furthermore, it is a great merit of Georg that he built up a special library at the Mathematical Institute of BOKU which is called Edmund Hlawka Library. It is specialized in number theory and contains many books of the legacy of Hlawka and Prachar. At the end of 2025 Werner Georg Nowak spent his 70th birthday and I express here in the name of his collaborators and friends my best wishes.

AD MULTOS ANNOS!

REFERENCES

- [1] N. Brunner, N. Kaiblinger, R. Tichy: AO. Univ. Prof. Mag. Dr. Manfred Kühleitner (1967-2022) An Obituary, Uniform Distribution Theory 17 (2022), no. 2, 195–198.

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