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OBITUARY

Obituary: Hanfried Lenz (1916–2013)

Dieter Jungnickel

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Hanfried Lenz 2006. Photo by Ralph Hardo Schulz. Used with permission.

Professor Hanfried Lenz, one of the most eminent and influential mathematicians working in Geometry and Designs, passed away on 1st June, 2013. This journal had honoured him on the occasion of his 80th birthday in 1996 with two special issues (Volume 8 Number 1/2 and Volume 10 Number 2) for which I acted as editor. The first of these two issues was ready well in time for Prof. Lenz's actual birthday and thus also for the big 80th birthday celebration held at the Free University of Berlin on May 11, 1996. Together, the two special issues contain 30 papers dedicated to Professor Lenz, the result of an enthusiastic response to my invitations to help celebrating Hanfried's special birthday. Now it is my sad duty to provide the present obituary for my revered teacher and supervisor.

D. Jungnickel (✉)
Lehrstuhl für Diskrete Mathematik, Optimierung, und Operations Research,
Universität Augsburg, 86135 Augsburg, Germany
e-mail: jungnickel@math.uni-augsburg.de

Hanfried Lenz was born on 22nd April, 1916 in Munich as the son of Fritz Lenz (1887–1976), a Professor of Genetics, and his wife Emmy. After his "Abitur" (school leaving exam) in 1934, he studied Mathematics and Physics at the Universities of Tübingen, Munich, Berlin, and Leipzig. His undergraduate studies were disrupted by military service and the war, so that he could not complete his "Staatsexamen" (in Leipzig) before 1941. After the war, he taught at a high school for two years and then worked as an assistant to Frank Löbell at the Technical University of Munich from 1949 to 1953, where he also did his doctoral studies under the supervision of Josef Lense (a former student of Samuel Oppenheim) and received his Ph.D. in 1951 for a thesis in Complex Analysis entitled *Zurückführung einiger Integrale auf einfachere mit Anwendungen auf Abbildungsaufgaben*. Most of his early academic career was spent at the Technical University of Munich, where he first was a lecturer and then a Professor (1959–1969). Then, for fifteen years starting in 1969, he was a full Professor at the Free University of Berlin, where he also served as Dean of the Mathematical Faculty and member of the Academic Senate for several years; after his retirement in 1984 he remained active there as Professor Emeritus, continuing to lecture well into his mid-80s. He also was a Visiting Professor at Ohio State University (1967–1968), at the University of Bologna (1978), and at the University of Gießen (1985–1986).

In 1943, Hanfried Lenz married Helene Ranke (1920–1994). They had four children (two girls and two boys), and several grandchildren and great-grandchildren. Professor Lenz died peacefully surrounded by his family on 1st June, 2013, in Berlin. The funeral service took place on 13th June, 2013, in the Dorfkirche Dahlem in Berlin.

Hanfried Lenz is well-known for his fundamental work in all parts of Geometry. He was a geometer with an exceptionally wide range of interests ranging from geometrical aspects of complex analysis, projective and affine geometries, transformation groups and quadratic forms associated with geometries, convex and ordered geometries to finite geometries and combinatorial designs. In particular, his major interest since the mid-70s was in Finite Geometries and Design Theory. I would like to mention just three important concepts that bear his name:

- the counterpart to the Veblen–Young axioms for projective spaces, namely the Lenz axioms describing the affine spaces,
- the celebrated Lenz–Barlotti classification for finite projective planes,
- the Lenz pairs, a huge class of parameter pairs (t, r) for finite projective Hjelmslev planes, which constituted the first and seminal examples for which t is not a power of r.

Equally important is his personal influence on many younger researchers, among them his six Ph.D. students: Ludwig Danzer, Harald Müller, Karlhorst Meyer, Joachim Röhmel, Gerhard Stern and myself.

Hanfried Lenz published over a hundred articles and several books. Among these, there are two early, highly influential German text books: *Grundlagen der Elementarmathematik* (1961, 3rd edition 1975) and *Vorlesungen über projektive Geometrie* (1965). Internationally, his best known book is the monograph *Design Theory* (1985, 2nd edition 1999) jointly written with our late friend Thomas Beth and myself. For a detailed appreciation of Lenz's scientific work and a complete list of his publications until 1992, I refer the reader to a paper in the first of the two special issues mentioned above, which was written jointly with Pickert [1]. Below, I merely add the handful of additional publications which appeared when he was already in his 80s.

Lenz has also written a candid and extremely interesting volume of memories (in German, see [109] below), which is of general interest for its description of the conflict between a happy personal life and the dark times of the Nazi regime as well as the politics of the emerging

new Germany and the times of student unrest following 1968. It also offers fascinating glimpses into the life of a German professorial family during the last century and is highly recommended to everyone reading German.

Professor Lenz's achievements have been recognized by an honorary fellowship in the Hamburger Mathematische Gesellschaft, an honorary doctorate from the Technical University of Munich, and the award of the 1995 Euler medal of the Institute of Combinatorics and its Applications. He was also an honorary editor for the Journal of Combinatorial Designs. Moreover, starting with his 60th birthday in 1976, a colloquium in his honour was held in Berlin every five years.

Finally, it only remains to express my lasting gratitude to and appreciation of Hanfried. There can be no doubt that his scientific legacy will stay alive for many years to come, and he will be fondly remembered by everybody who had the privilege of knowing him personally.

The Last Publications of Hanfried Lenz

104. Jacob Steiner and synthetic geometry (with H. Begehr) In: *Mathematics in Berlin* (Ed. H. Begehr), pp. 49–54. Birkhäuser, Basel (1998). Zbl. 0897.01017, MR1648670
105. *Design theory. 2nd Edition Volume 1* (with T. Beth and D. Jungnickel) Cambridge University Press, Cambridge (1999). Zbl. 0945.05004, MR1729456
106. *Design theory. 2nd Edition Volume 2* (with T. Beth and D. Jungnickel) Cambridge University Press, Cambridge (1999). Zbl. 0945.05005, MR1742365
107. Another simple proof for the existence of the small Witt design (with H. Havlicek) *Elem. Math.* **56** (2001), 89–94. Zbl. 0988.05019, MR1858258
108. Eine Plauderei über Schönheit und Wahrheit in der Mathematik *Mitt. Math. Ges. Hamburg* **20** (2001), 37–54. Zbl. 1040.00004, MR1884393
109. *Mehr Glück als Verstand: Erinnerungen von Hanfried Lenz.* Books on Demand Gmbh (2002), ISBN 9783831136186

Reference

1. Jungnickel, D., Pickert, G.: A life's work in geometry: an homage to Hanfried Lenz. Des. Codes Cryptogr. **8**, 9–22 (1996)