Luise-Charlotte Kappe, Binghamton University

Finite Coverings: A Journey Through Groups, Loops, Rings and Semigroups

Abstract: A group is said to be covered by a collection of proper subgroups if each element of the group belongs to at least one subgroup in the collection: the collection of subgroups is called a covering of the group. If the set of subgroups is finite, we say the group has a finite covering. Many questions raised in the context of finite coverings of groups, such as conditions for a group to have a finite covering by abelian subgroups or determining the minimal number of subgroups needed to cover the group, make sense in other algebraic structures too.

In my talk I will report on my journeys through groups, loops, rings and semigroups, on what I discovered there about finite coverings together with several fellow travelers and on some discoveries which might still lie ahead.

Biography: Luise-Charlotte Kappe is a native of Germany, where she studied at the Universities of Erlangen and Freiburg. She obtained her Ph.D. under the direction of Theodor Schneider in the area of transcendental numbers and is now working in group theory in a variety of areas. These include commutator calculus, subnormality and finiteness conditions, and several others. She experienced that applying other areas of mathematics like graph theory and combinatorics is very helpful to reach one's goals. The same thing holds for GAP as a research tool, in particular for constructing examples and extrapolating from the insight gained through them.

In 1963, she and her husband Wolfgang immigrated to the US. After spending five years at Ohio State University, they moved to the State University of New York at Binghamton. After raising two sons, she "raised" fourteen Ph.D. students. In 1999 she received an NSF grant to develop a pilot program for the preparation of future mathematics faculty. Since 2004 she is Professor Emerita. She is still active in research and every fall she teaches a course on a topic she likes.

From 1994-2000 Dr. Kappe served the section as First Vice-Chair, Chair-Elect, Chair, and Immediate Past-Chair, and from 2003 to 2006 she was the Governor of the section. She has served on and chaired a variety of committees in the section, and was a founding member of the Seaway NExT Advisory Committee. In 2002 she gave the post-banquet talk at the section's spring meeting, "It's a Wonderful Life! - Observations on a Career as a Mathematician." Dr. Kappe is the recipient of the 2003 MAA Certificate of Meritorious Service.