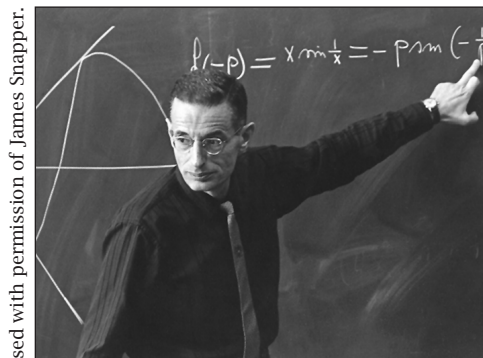


Ernst Snapper (1913–2011)

Joseph Buckley



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Ernst Snapper

Ernst Snapper was born in Groningen in the Netherlands in 1913. He came to the United States in 1938 to study at Princeton and received his Ph.D. in 1941 under the direction of J. H. M. Wedderburn. He remained at Princeton as an instructor until 1945, when he was appointed assistant professor at the

University of Southern California. During his USC years, Snapper held two visiting appointments—at Princeton, 1949–1950, and at Harvard, 1953–1954. He was promoted to full professor in 1953.

In 1955 Snapper was named the Andrew Jackson Buckingham Professor of Mathematics at Miami University of Ohio. A few years later, in 1958, he accepted a position as professor at Indiana University. Then, in 1963, he moved to Dartmouth College, where he was named the Benjamin Pierce Cheney Professor of Mathematics in 1971, a position he held until his retirement in 1979.

Snapper's research made significant contributions in commutative algebra, algebraic geometry, cohomology of groups, character theory, and combinatorics.

An early sequence of papers extended the Steinitz field theory to completely primary rings using ideas from the work of Krull. During his visits at Princeton and Harvard, Snapper studied algebraic geometry and the homological and sheaf-theoretic methods of Serre and Grothendieck. Later he applied those methods in several important papers on the polynomial properties of the Euler characteristic associated with divisor classes of an irreducible normal projective variety. He continued using homological methods in a sequence of papers in which he extended the classical

cohomology of groups to the cohomology of arbitrary permutation representations of finite groups. Snapper then applied these methods to obtain a classical result on Frobenius kernels.

In the area of combinatorial mathematics, Snapper extended de Bruijn's theory of the cycle index of a finite group to that of an arbitrary permutation representation. A subsequent paper coauthored with Arunas Rudvalis extended this cycle index to a generalized cycle index of a permutation representation paired with a class function. They then obtained the theorem of Frobenius that every simple character of the symmetric group is an integral linear combination of transitive permutation characters.

In 1971 Snapper coauthored the text *Metric Affine Geometry* (Academic Press) with Robert J. Troyer, a text for upper-level undergraduates and graduate students. It reflected their conviction that geometry for both high school and college students should be based on a foundation of linear algebra. Their book was inspired by the classic text *Geometric Algebra* by E. Artin.

Snapper was an outstanding lecturer much in demand by the MAA, and he taught in numerous summer institutes for both high school and college mathematics teachers. He also had a long-time interest in the foundations of mathematics. For his beautiful paper "The three crises in mathematics: Logicism, intuitionism and formalism", Snapper was awarded the Carl B. Allendoerfer Award from the MAA in 1980.

During his career Snapper mentored fifteen Ph.D. students. His students valued his lucid lectures, which frequently challenged them with open questions. Both at Indiana University and at Dartmouth College, Snapper and his wife, Ethel, hosted numerous gatherings for visiting speakers, which were well attended by faculty and graduate students. When graduate students were unable to go home during vacations, the Snappers invited the students to their home for holiday meals. Snapper loved outdoor activities, from sailing on the lakes near Bloomington to walking in the woods near Hanover and hiking in the White Mountains of New Hampshire, and he enjoyed many adventurous summer trips with his two sons.

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