

Thirty years of investigations in the field of catenanes, rotaxanes and knots

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A survey is given on the investigations carried out by the author and his research group during the last thirty years. The results of the investigations are laid down in about seventy publications. Key publications on the main subjects are selected. They are the following:

(A) *Synthesis, Spectroscopic and Physical Properties and Reactions of Catenanes and Rotaxanes:*

- G. Schill and A. Lüttringhaus, Die gezielte Synthese von Catena-Verbindungen *Angew. Chemie* 76(1964)567.
- W. Vetter and G. Schill, Das Massenspektrum einer Catena-Verbindung *Tetrahedron* 23(1969)3079.
- G. Schill, *Catenanes, Rotaxanes and Knots* (Academic Press, New York, 1971).
- G. Schill and C. Zürcher, [3]-Catenane durch gezielte Synthese *Chem. Ber.* 110(1977)2046; 3964.
- G. Schill, K. Rissler, H. Fritz and W. Vetter, Synthese, Isolierung und Identifizierung translationsisomerer [3]-Catenane *Angew. Chemie* 93(1981)197.
- G. Schill, N. Schweickert, H. Fritz and W. Vetter, Synthese von [2]-Catenanen aus [2]-Rotaxanen *Chem. Ber.* 121(1988)961.

(B) *Knots and Topology*

- J. Boeckmann and G. Schill, Knotenstrukturen in der Chemie *Tetrahedron* 30(1974)1945.

(C) *Investigations on the Synthesis of Trefoil Knots*

(a) Statistical approach:

- G. Schill, E. Logemann and H. Fritz, Synthese und ^{13}C -NMR -Spektren hochgliedriger Cycloalkadiine
Chem. Ber. 109(1976)497.

(b) Möbius-strip approach:

- G. Schill, U. Keller and H. Fritz, Synthese von zweifach überbrückten Tetraamino-1,4-benzochinonen
Chem. Ber. 116(1983)3675.

(c) Partly directed approach:

- G. Schill, G. Doerjer, E. Logemann and H. Fritz, Untersuchungen zur Synthese von Molekülen mit Knotenstruktur. Vierfach überbrückte 5,6-Diamino-1,3-benzodioxol-Derivate
Chem. Ber. 112(1979)3603.