

Synthesis of Covalent Cylindrical Objects and Covalent Monomolecular Sheets

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The research interests of my group are within the field of synthetic and supramolecular chemistry, directed towards the creation of structurally novel polymers including cylindrical objects (dendronized polymers[1]), molecular sheets [2], and 2D polymers [3]. Methodological developments also play a role, particularly in regard to Suzuki polycondensation [4]. Our research is motivated by the novelty of the molecular structures pursued, and by the claim to achieve a visible progress in polymer synthesis. Although applications are always of considerable relevance in defining the goal, fundamental questions are of equal importance.

The two questions that presently thrill us the most are:

- 1) "Does systematic thickening of polymer chains lead to new properties?" and
- 2) "Can one achieve lateral growth to give infinitely extended, covalent, monolayered molecules with internal periodicity (2D polymers)?"

Besides this we maintain an interest in shape-persistent macrocycles [5] and fully unsaturated double-stranded belts [6].

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[5] Grave, C.; Schlüter, A. D. „Shape-persistent Nano-sized Macrocycles“, *Eur. J. Org. Chem.* 2002, 3075-3098.

[6] Denekamp, C.; Etinger, A.; Amrein, W.; Stanger, A.; Stuparu, M.; Schlüter, A. D. „Towards a fully conjugated, double-stranded cycle: A mass spectrometric and theoretical study“, *Chem. Eur. J.* 2008, 14, 1628-1637.

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