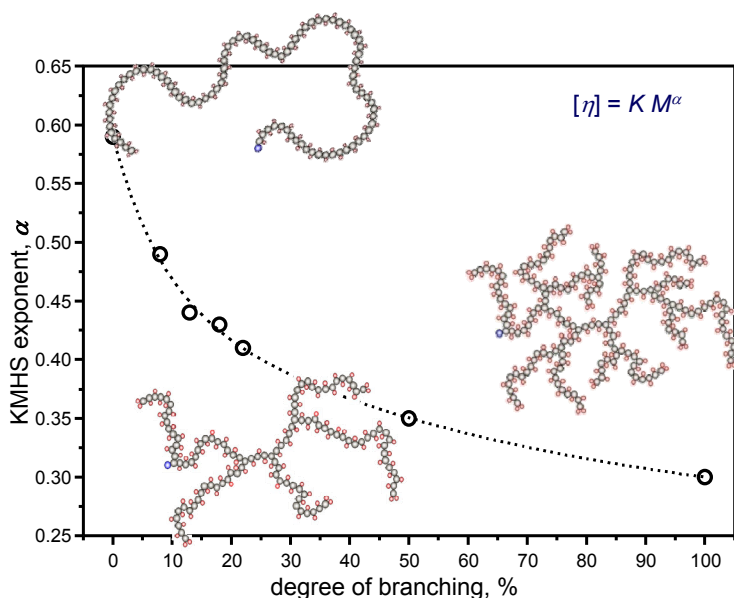
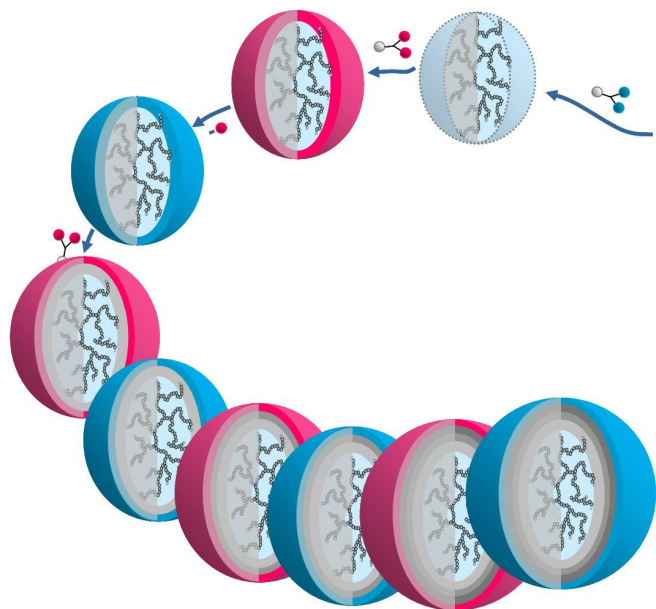


## Scaling properties of model dendritic polymers

Hyperbranched polymers are occupying rapidly different application fields mainly as specialty polymers. In addition to their high functionality and advantageous rheological features, they can be easily prepared using simple synthetic procedures starting from well-accessible multifunctional monomers. The statistical polymerization process however leads to multiple distributions, i.e. in molar mass, degree of branching and chemical structure. This makes the physicochemical characterization of these polymers difficult. Well-defined model polymers help to understand the structure-property relationship. Precisely synthesized polymers in molar mass, branching degree and chemical structure allow to theoretically describe the spatial dimensions and solution properties of statistically branched polymers. Investigations by static and dynamic light scattering, viscosity, hyphenated chromatographic separations and last but not least SANS investigations help us to understand and describe these properties. Additional complementary information give thermal investigations as well as MD simulations of the molecules.



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In applications in which well-defined, dense molecular surface is required, e.g. drug delivery, perfectly structured dendrimers are used. Combination of an easy synthesis and a high functionality can be achieved also using postmodification of the functional groups of hyperbranched polymers with protected monomers leading to pseudo-dendrimers. In this way two effects are achieved, increase of the degree of branching up to 100% and increase of the number of functional groups. Additional deprotection and repeated postmodification leads to higher number of generations. The increase of the shell size affects the molecular properties of the pseudo-dendrimers. Scaling parameters of these molecules are subject of investigation by lights scattering techniques, viscosity and SANS.