

References

- AERTS, J. (1998) Prediction of intrinsic viscosities of dendritic, hyperbranched and branched polymers. *Computational and Theoretical Polymer Science*, 8, 49-54.
- ALDER, B. J. & WAINWRIGHT, T. E. J. (1957) Phase transition for a hard sphere system. *Journal of Chemical Physics*, 27, 1208-1209.
- ALDER, B. J. & WAINWRIGHT, T. E. J. (1959) Studies in Molecular Dynamics. I. General Method. *Journal of Chemical Physics*, 31, 459.
- ALLEN, M. P. & TILDESLEY, D. J. (1987) *Computer simulation of liquids*, Oxford, Clarendon Press.
- ALLEN, M. P. & TILDESLEY, D. J. (1993) *Computer simulation in chemical physics*, Dordrecht Kluwer Academic Publishers.
- AOKI, A., GHOSH, P. & CROOKS, R. M. (1999) Micrometer-scale patterning of multiple dyes on hyperbranched polymer thin films using photoacid-based lithography. *Langmuir*, 15, 7418-7421.
- BIRD, R. B., CURTISS, C. F., ARMSTRONG, R. C. & HASSAGER, O. (1987) *Dynamics of Polymeric Liquids*, New York, John Wiley & Sons.
- BOLHUIS, P. G., LOUIS, A. A., HANSEN, J. P. & MEIJER, E. J. (2001) Accurate effective pair potentials for polymer solutions. *Journal of Chemical Physics*, 114, 4296-4311.
- BOLTON, D. H. & WOOLEY, K. L. (2002) Hyperbranched aryl polycarbonates derived from A(2)B monomers versus AB(2) monomers. *Journal of Polymer Science Part A-Polymer Chemistry*, 40, 823-835.
- BOOGH, L., PETTERSSON, B. & MANSON, J. A. E. (1999) Dendritic hyperbranched polymers as tougheners for epoxy resins. *Polymer*, 40, 2249-2261.
- BOSKO, J. T. (2005) Molecular Simulation of Dendrimers Under Shear. *Centre for Molecular Simulation*. Melbourne, Swinburne University of Technology.
- BOSKO, J. T. & PRAKASH, J. R. (2008) Effect of molecular topology on the transport properties of dendrimers in dilute solution at Theta temperature: A Brownian dynamics study. *Journal of Chemical Physics*, 128, 034902.
- BOSKO, J. T., TODD, B. D. & SADUS, R. J. (2004a) Internal structure of dendrimers in the melt under shear: A molecular dynamics study. *Journal of Chemical Physics*, 121, 1091-1096.
- BOSKO, J. T., TODD, B. D. & SADUS, R. J. (2004b) Viscoelastic properties of dendrimers in the melt from nonequilibrium molecular dynamics. *Journal of Chemical Physics*, 121, 12050-12059.
- BOSKO, J. T., TODD, B. D. & SADUS, R. J. (2005) Molecular simulation of dendrimers and their mixtures under shear: Comparison of isothermal-isobaric

- (NpT) and isothermal-isochoric (NVT) ensemble systems. *Journal of Chemical Physics*, 123, 034905.
- BOSKO, J. T., TODD, B. D. & SADUS, R. J. (2006) Analysis of the shape of dendrimers under shear. *Journal of Chemical Physics*, 124, 044910.
- BUHLEIER, E., WEHNER, W. & VÖGTLE, F. (1978) "Cascade"- and "Nonskid-Chain-like" Syntheses of Molecular Cavity Topologies. *Synthesis*, 2, 155-158.
- BURKINSHAW, S. M., FROEHLING, P. E. & MIGNANELLI, M. (2002) The effect of hyperbranched polymers on the dyeing of polypropylene fibres. *Dyes and Pigments*, 53, 229-235.
- COSULICH, M. E., RUSSO, S., PASQUALE, S. & MARIANI, A. (2000) Performance evaluation of hyperbranched aramids as potential supports for protein immobilization. *Polymer*, 41, 4951-4956.
- CROOKS, R. M. (2001) Patterning of hyperbranched polymer films. *ChemPhysChem*, 2, 644-654.
- CROSS, M. M. (1965) Rheology of non-Newtonian fluids: A new flow equation for pseudoplastic systems. . *Journal of Colloid Science*, 20, 417-437
- DAI, L. M., WINKLER, B., DONG, L. M., TONG, L. & MAU, A. W. H. (2001) Conjugated polymers for light-emitting applications. *Advanced Materials*, 13, 915-925.
- DAIVIS, P. J. & EVANS, D. J. (1994) Comparison of Constant-Pressure and Constant Volume Nonequilibrium Simulations of Sheared Model Decane. *Journal of Chemical Physics*, 100, 541-547.
- DAIVIS, P. J., EVANS, D. J. & MORRISS, G. P. (1992) Computer-Simulation Study of the Comparative Rheology of Branched and Linear Alkanes. *Journal of Chemical Physics*, 97, 616-627.
- DALAKOGLU, G. K., KARATASOS, K., LYULIN, S. V. & LYULIN, A. V. (2008) Shear-induced effects in hyperbranched-linear polyelectrolyte complexes. *Journal of Chemical Physics*, 129, 034901.
- DING, Y., OTTINGER, H. C., SCHLUTER, A. D. & KROGER, M. (2007) From atomistic simulation to the dynamics, structure and helical network formation of dendronized polymers: The Janus chain model. *Journal of Chemical Physics*, 127, 094904.
- DOI, M. & EDWARDS, S. F. (1986) *The Theory of Polymer Dynamics*, Oxford, Clarendon Press.
- EDBERG, R., EVANS, D. J. & MORRISS, G. P. (1986) Constrained Molecular-Dynamics - Simulations of Liquid Alkanes with a New Algorithm. *Journal of Chemical Physics*, 84, 6933-6939.

- EDBERG, R., MORRISS, G. P. & EVANS, D. J. (1987) Rheology of N-Alkanes by Nonequilibrium Molecular-Dynamics. *Journal of Chemical Physics*, 86, 4555-4570.
- EMRICK, T., CHANG, H. T., FRECHET, J. M. J., WOODS, J. & BACCEI, L. (2000) Hyperbranched aromatic epoxies in the design of adhesive materials. *Polymer Bulletin*, 45, 1-7.
- EVANS, D. J. & MORRISS, G. P. (1984) Nonlinear-Response Theory for Steady Planar Couette-Flow. *Physical Review A*, 30, 1528-1530.
- EVANS, D. J. & MORRISS, G. P. (1990) *Statistical Mechanics of Nonequilibrium Liquids*, London, Academic Press.
- FARRINGTON, P. J., HAWKER, C. J., FRECHET, J. M. J. & MACKAY, M. E. (1998) The melt viscosity of dendritic poly(benzyl ether) macromolecules. *Macromolecules*, 31, 5043-5050.
- FERRY, J. D. (1980) *Viscoelastic Properties of Linear Polymers*, New York, Wiley.
- FLORY, P. J. (1952) Molecular size distribution in three dimensional polymers VI. Branched polymers containing A-R-B_{f-1} type units. *Journal of the American Chemical Society*, 74, 2718-2723.
- FOWLER, M. W. & BAKER, W. E. (1988) Rubber Toughening of Polystyrene through Reactive Blending. *Polymer Engineering and Science*, 28, 1427-1433.
- FRENKEL, D. & SMIT, B. (1996) *Understanding Molecular Simulation From Algorithm to Applications*, Orlando, Academic Press.
- FREY, H. & HAAG, R. (2002) Dendritic polyglycerol: a new versatile biocompatible-material. *J Biotechnol*, 90, 257-67.
- GAO, C. & YAN, D. (2004) Hyperbranched polymers: from synthesis to applications. *Progress in polymer science*, 29, 183-275.
- GEAR, C. W. (1971) *Numerical Initial Value Problems in Ordinary Differential Equations*, New York, Prentice-Hall, Englewood Cliffs.
- GHOSH, P., AMIRPOUR, M. L., LACKOWSKI, W. M., PISHKO, M. V. & CROOKS, R. M. (1999) A simple lithographic approach for preparing patterned, micron-scale corrals for controlling cell growth. *Angewandte Chemie-International Edition*, 38, 1592-1595.
- GHOSH, P. & CROOKS, R. M. (1999) Covalent grafting of a patterned, hyperbranched polymer onto a plastic substrate using microcontact printing. *Journal of the American Chemical Society*, 121, 8395-8396.
- GHOSH, P., LACKOWSKI, W. M. & CROOKS, R. M. (2001) Two new approaches for patterning polymer films using templates prepared by microcontact printing. *Macromolecules*, 34, 1230-1236.

- GOPALA, A., WU, H., XU, J. & HEIDEN, P. (1999) Investigation of readily processable thermoplastic-toughened thermosets: IV. BMIs toughened with hyperbranched polyester. *Journal of Applied Polymer Science*, 71, 1809-1817.
- GREST, G. S. & KREMER, K. (1986) Molecular-Dynamics Simulation for Polymers in the Presence of a Heat Bath. *Physical Review A*, 33, 3628-3631.
- GRYSHCHUK, O., JOST, N. & KARGER-KOCSIS, J. (2002a) Toughening of vinylester-urethane hybrid resins by functional liquid nitrile rubbers and hyperbranched polymers. *Polymer*, 43, 4763-4768.
- GRYSHCHUK, O., JOST, N. & KARGER-KOCSIS, J. (2002b) Toughening of vinylester-urethane hybrid resins through functionalized polymers. *Journal of Applied Polymer Science*, 84, 672-680.
- HAILE, J. M. (1997) *Molecular dynamics simulation : elementary methods*, New York, Wiley.
- HARREIS, H. M., LIKOS, C. N. & BALLAUFF, M. (2003) Can dendrimers be viewed as compact colloids? A simulation study of the fluctuations in a dendrimer of fourth generation. *Journal of Chemical Physics*, 118, 1979-1988.
- HAWKER, C. J., FARRINGTON, P. J., MACKAY, M. E., WOOLEY, K. L. & FRECHET, J. M. J. (1995) Molecular Ball-Bearings - the Unusual Melt Viscosity Behavior of Dendritic Macromolecules. *Journal of the American Chemical Society*, 117, 4409-4410.
- HE, Q. G., BAI, F. L., YANG, J. L., LIN, H. Z., HUANG, H. M., YU, G. & LI, Y. F. (2002) Synthesis and properties of high efficiency light emitting hyperbranched conjugated polymers. *Thin Solid Films*, 417, 183-187.
- HE, Q. G., LIN, T. & BAI, F. L. (2001) Synthesis and photophysical properties of linear and hyperbranched conjugated polymer. *Chinese Science Bulletin*, 46, 636-641.
- HEDRICK, J. L., HAWKER, C. J., MILLER, R. D., TWIEG, R., SRINIVASAN, S. A. & TROLLSAS, M. (1997) Structure control in organic-inorganic hybrids using hyperbranched high-temperature polymers. *Macromolecules*, 30, 7607-7610.
- HOLTER, D., BURGATH, A. & FREY, H. (1997) Degree of branching in hyperbranched polymers. *Acta Polymerica*, 48, 30-35.
- HONG, L., CUI, Y. J., WANG, X. L. & TANG, X. Z. (2002) Synthesis of a novel one-pot approach of hyperbranched polyurethanes and their properties. *Journal of Polymer Science Part a-Polymer Chemistry*, 40, 344-350.
- HONG, Y., COOMBS, S. J., COOPER-WHITE, J. J., MACKAY, M. E., HAWKER, C. J., MALMSTROM, E. & REHNBERG, N. (2000) Film blowing of linear low-density polyethylene blended with a novel hyperbranched polymer processing aid. *Polymer*, 41, 7705-7713.
- HONG, Y., COOPER-WHITE, J. J., MACKAY, M. E., HAWKER, C. J., MALMSTROM, E. & REHNBERG, N. (1999) A novel processing aid for

polymer extrusion: Rheology and processing of polyethylene and hyperbranched polymer blends. *Journal of Rheology*, 43, 781-793.

- HOOVER, W. G., EVANS, D. J., HICKMAN, R. B., LADD, A. J. C., ASHURST, W. T. & MORAN, B. (1980) Lennard-Jones triple-point bulk and shear viscosities. Green-Kubo theory, Hamiltonian mechanics, and nonequilibrium molecular dynamics. *Phys. Rev. A*, 22, 1690-1697.
- ITOH, T., HIRATA, N., WEN, Z. Y., KUBO, M. & YAMAMOTO, O. (2001) Polymer electrolytes based on hyperbranched polymers. *Journal of Power Sources*, 97-8, 637-640.
- ITOH, T., ICHIKAWA, Y., HIRATA, N., UNO, T., KUBO, M. & YAMAMOTO, O. (2002) Effect of branching in base polymer on ionic conductivity in hyperbranched polymer electrolytes. *Solid State Ionics*, 150, 337-345.
- ITOH, T., MIYAMURA, Y., ICHIKAWA, Y., UNO, T., KUBO, M. & YAMAMOTO, O. (2003) Composite polymer electrolytes of poly(ethylene oxide)/BaTiO₃/Li salt with hyperbranched polymer. *Journal of Power Sources*, 119, 403-408.
- JABBARZADEH, A., ATKINSON, J. D. & TANNER, R. I. (2003) Effect of molecular shape on rheological properties in molecular dynamics simulation of star, H, comb, and linear polymer melts. *Macromolecules*, 36, 5020-5031.
- JANG, J., OH, J. H. & MOON, S. I. (2000) Crystallization behavior of poly(ethylene terephthalate) blended with hyperbranched polymers: The effect of terminal groups and composition of hyperbranched polymers. *Macromolecules*, 33, 1864-1870.
- JIKEI, M. & KAKIMOTO, M. (2001) Hyperbranched polymers: a promising new class of materials. *Progress in Polymer Science*, 26, 1233-1285.
- JOHANSSON, M., MALMSTOM, E., JANSSON, A. & HULT, A. (2000) Novel concept for low temperature curing powder coatings based on hyperbranched polyesters. *Journal of Coatings Technology*, 72, 49-54.
- KIENLE, R. H. & HOVEY, A. G. (1929) The polyhydric alcohol-polybasic acid reaction I. Glycerol-phthalic anhydride. *Journal of the American Chemical Society*, 51, 509-519.
- KIENLE, R. H., MEULEN, P. A. V. D. & PETKE, F. E. (1939a) The polyhydric alcohol-polybasic acid reaction III. Further studies of the glycerol-phthalic anhydride reaction. *Journal of the American Chemical Society*, 61, 2258-2268.
- KIENLE, R. H., MEULEN, P. A. V. D. & PETKE, F. E. (1939b) The polyhydric alcohol-polybasic acid reaction IV. Glyceryl phthalate from phthalic acid. *Journal of the American Chemical Society*, 61, 2269-2271.
- KIM, J. M., KEFFER, D. J., KROGER, M. & EDWARDS, B. J. (2008) Rheological and entanglement characteristics of linear-chain polyethylene liquids in planar Couette and planar elongational flows. *Journal of Non-Newtonian Fluid Mechanics*, 152, 168-183.

- KIM, Y. H. & WEBSTER, O. W. (1988) Hyperbranched polyphenylenes. *Polymer Preparation*, 23, 310-311.
- KIM, Y. H. & WEBSTER, O. W. (1990) Water-Soluble Hyperbranched Polyphenylene: "A Unimolecular Micelle"? *Journal of the American Chemical Society*, 112, 4592-4593.
- KIM, Y. H. & WEBSTER, O. W. (1992) Hyperbranched Polyphenylenes. *Macromolecules*, 25, 5561-5572.
- KIOUPIS, L. I. & MAGINN, E. J. (1999) Rheology, dynamics, and structure of hydrocarbon blends: a molecular dynamics study of n-hexane/n-hexadecane mixtures. *Chemical Engineering Journal*, 74, 129-146.
- KONKOLEWICZ, D., GILBERT, G. R. & GRAY-WEALE, A. (2007) Randomly Hyperbranched Polymers. *Physical Review Letters*, 98, 238301.
- KONKOLEWICZ, D., THORN-SESHOLD, O. & GRAY-WEALE, A. (2008) Models for randomly hyperbranched polymers: Theory and simulation. *Journal of Chemical Physics*, 129, 054901.
- KROGER, M. (2005) *Models for polymeric and anisotropic liquids*, New York, Springer.
- KROGER, M., LOOSE, W. & HESS, S. (1993) Rheology and Structural-Changes of Polymer Melts Via Nonequilibrium Molecular-Dynamics. *Journal of Rheology*, 37, 1057-1079.
- KROGER, M., LUAP, C. & MULLER, R. (1997) Polymer melts under uniaxial elongational flow: Stress-optical behavior from experiments and nonequilibrium molecular dynamics computer simulations. *Macromolecules*, 30, 526-539.
- KROGER, M., PELEG, O., DING, Y. & RABIN, Y. (2008) Formation of double helical and filamentous structures in models of physical and chemical gels. *Soft Matter*, 4, 18-28.
- LACKOWSKI, W. M., GHOSH, P. & CROOKS, R. M. (1999) Micron-scale patterning of hyperbranched polymer films by micro-contact printing. *Journal of the American Chemical Society*, 121, 1419-1420.
- LAFERLA, R. (1997) Conformations and dynamics of dendrimers and cascade macromolecules. *Journal of Chemical Physics*, 106, 688-700.
- LANGE, J., STENROOS, E., JOHANSSON, M. & MALMSTROM, E. (2001) Barrier coatings for flexible packaging based on hyperbranched resins. *Polymer*, 42, 7403-7410.
- LARSON, R. G. (1999) *The structure and rheology of complex fluids*, New York, Oxford University Press.
- LEBIB, A., CHEN, Y., CAMBRIL, E., YOUINO, P., STUDER, V., NATALI, M., PEPIN, A., JANSSEN, H. M. & SIJBESMA, R. P. (2002) Room-temperature

- and low-pressure nanoimprint lithography. *Microelectronic Engineering*, 61-2, 371-377.
- LEBIB, A., NATALI, M., LI, S. P., CAMBRIL, E., MANIN, L., CHEN, Y., JANSSEN, H. M. & SIJBESMA, R. P. (2001) Control of the critical dimension with a trilayer nanoimprint lithography procedure. *Microelectronic Engineering*, 57-8, 411-416.
- LEE, A. T. & MCHUGH, A. J. (2001) Brownian dynamics study of mixed linear-hyperbranched polymers. *Macromolecules*, 34, 7127-7134.
- LEES, A. W. & EDWARDS, S. F. (1972) The computer study of transport processes under extreme conditions. *Journal of Physics C: Solid State Physics*, 5, 1921-1929.
- LENNARD-JONES, J. E. (1924a) The determination of molecular fields. I. From the variation of the viscosity of a gas with temperature. *Proceedings of the Royal Society (London)*, 106A, 441-462.
- LENNARD-JONES, J. E. (1924b) The determination of molecular fields. II. From the equation of state of a gas. *Proceedings of the Royal Society (London)*, 106A, 463-477.
- LESCANEC, R. L. & MUTHUKUMAR, M. (1990) Configurational Characteristics and Scaling Behavior of Starburst Molecules: A Computational Study. *Macromolecules*, 23, 2280-2288.
- LIKOS, C. N., ROSENFELDT, S., DINGENOUTS, N., BALLAUFF, M., LINDNER, P., WERNER, N. & VOGTLE, F. (2002) Gaussian effective interaction between flexible dendrimers of fourth generation: A theoretical and experimental study. *Journal of Chemical Physics*, 117, 1869-1877.
- LIKOS, C. N., SCHMIDT, M., LOWEN, H., BALLAUFF, M., POTSCHEKE, D. & LINDNER, P. (2001) Soft interaction between dissolved flexible dendrimers: Theory and experiment. *Macromolecules*, 34, 2914-2920.
- LIM, Y., KIM, S. M., LEE, Y., LEE, W., YANG, T., LEE, M., SUH, H. & PARK, J. (2001) Cationic hyperbranched poly(amino ester): a novel class of DNA condensing molecule with cationic surface, biodegradable three-dimensional structure, and tertiary amine groups in the interior. *Journal of the American Chemistry Society*, 123, 2460-1.
- LIN, T., HE, Q. G., BAI, F. L. & DAI, L. M. (2000) Design, synthesis and photophysical properties of a hyperbranched conjugated polymer. *Thin Solid Films*, 363, 122-125.
- LONDON, F. (1930) Properties and applications of molecular forces. *Zeit. Physik. Chem. B*, 11, 222-223.
- LOUIS, A. A. & BOLHUIS, P. G. (2000) Can polymer coils be modeled as "soft colloids"? *Physical Review Letters*, 85, 2522-2525.

- LUE, L. (2000) Volumetric behavior of athermal dendritic polymers: Monte Carlo simulation. *Macromolecules*, 33, 2266-2272.
- LYULIN, A. V., ADOLF, D. B. & DAVIES, G. R. (2001) Computer simulations of hyperbranched polymers in shear flows. *Macromolecules*, 34, 3783-3789.
- MACOSKO, C. W. (1994) *Rheology principles, measurements, and applications*, New York, VCH Publishers.
- MAIER, G. & GRIEBEL, T. (2000) "Core shell" hyperbranched polymers for molecular imprinting. *Abstracts of Papers of the American Chemical Society*, 219, U366.
- MALMSTROM, E. & HULT, A. (1997) Hyperbranched polymers: A review. *Journal of Macromolecular Science-Reviews in Macromolecular Chemistry and Physics*, C37, 555-579.
- MARKOSKI, L. J., MOORE, J. S., SENDIJAREVIC, I. & MCHUGH, A. J. (2001) Effect of linear sequence length on the properties of branched aromatic etherimide copolymers. *Macromolecules*, 34, 2695-2701.
- MASSA, D. J., SHRINER, K. A., TURNER, S. R. & VOIT, B. I. (1995) Novel Blends of Hyperbranched Polyesters and Linear-Polymers. *Macromolecules*, 28, 3214-3220.
- MEAD, D. W. & LARSON, R. G. (1990) Rheoptical Study of Isotropic Solutions of Stiff Polymers. *Macromolecules*, 23, 2524-2533.
- MECKING, S., THOMANN, R., FREY, H. & SUNDER, A. (2000) Preparation of catalytically active palladium nanoclusters in compartments of amphiphilic hyperbranched polyglycerols. *Macromolecules*, 33, 3958-3960.
- METROPOLIS, N., ROSENBLUTH, A. W., ROSENBLUTH, M. N., TELLER, A. H. & TELLER, E. (1953) Equation of state calculations by fast computing machines. *Journal of Chemical Physics*, 21, 1087-1092.
- MEZZENGA, R., BOOGH, L. & MANSON, J. A. E. (2001) A review of dendritic hyperbranched polymer as modifiers in epoxy composites. *Composites Science and Technology*, 61, 787-795.
- MEZZENGA, R., BOOGH, L., PETTERSSON, B. & MANSON, J. A. E. (2000) Chemically induced phase separated morphologies in epoxy resin-hyperbranched polymer blends. *Macromolecular Symposia*, 149, 17-22.
- MORRELL, W. E. & HILDEBRAND, J. H. (1936) The distribution of molecules in a model liquid. *Journal of Chemical Physics*, 4, 224-227.
- MULKERN, T. J. & TAN, N. C. B. (2000) Processing and characterization of reactive polystyrene/hyperbranched polyester blends. *Polymer*, 41, 3193-3203.

- NEELOV, I. M. & ADOLF, D. B. (2004) Brownian dynamics simulation of hyperbranched polymers under elongational flow. *Journal of Physical Chemistry B*, 108, 7627-7636.
- NGUYEN, C., HAWKER, C. J., MILLER, R. D., HUANG, E., HEDRICK, J. L., GAUDERON, R. & HILBORN, J. G. (2000) Hyperbranched polyesters as nanoporosity templating agents for organosilicates. *Macromolecules*, 33, 4281-4284.
- NISHIMOTO, A., AGEHARA, K., FURUYA, N., WATANABE, T. & WATANABE, M. (1999) High ionic conductivity of polyether-based network polymer electrolytes with hyperbranched side chains. *Macromolecules*, 32, 1541-1548.
- NUNEZ, C. M., CHIOU, B. S., ANDRADY, A. L. & KHAN, S. A. (2000) Solution rheology of hyperbranched polyesters and their blends with linear polymers. *Macromolecules*, 33, 1720-1726.
- ODIAN, G. G. (2004) *Principles of polymerization*, Hoboken, Wiley-Interscience
- OH, J. H., JANG, J. S. & LEE, S. H. (2001) Curing behavior of tetrafunctional epoxy resin/hyperbranched polymer system. *Polymer*, 42, 8339-8347.
- PIERANSKI, P., MALECKI, J., KUCZYNSKI, W. & WOJCIECHOWSKI, K. (1978) A hard disc system, an experimental model. *Philosophical Magazine A37*, 107-115.
- PROSA, T. J., BAUER, B. J., AMIS, E. J., TOMALIA, D. A. & SCHERRENBERG, R. (1997) A SAXS study of the internal structure of dendritic polymer systems. *Journal of Polymer Science Part B-Polymer Physics*, 35, 2913-2924.
- RAPAPORT, D. C. (1995) *The art of molecular dynamics simulation*, Cambridge, Cambridge University Press.
- RATNA, D. & SIMON, G. P. (2001) Thermomechanical properties and morphology of blends of a hydroxy-functionalized hyperbranched polymer and epoxy resin. *Polymer*, 42, 8833-8839.
- REYNOLDS, O. (1885) On the dilatancy of media composed of rigid particles in contact with experimental illustrations., *Philosophical Magazine*, 20, 469-481.
- ROTHSTEIN, J. P. & MCKINLEY, G. H. (2002) A comparison of the stress and birefringence growth of dilute, semi-dilute and concentrated polymer solutions in uniaxial extensional flows. *Journal of Non-Newtonian Fluid Mechanics*, 108, 275-290.
- SADUS, R. J. (1999) *Molecular Simulation of Fluids: Algorithms and Object-Oriented*, Amsterdam, Elsevier.
- SCHMALJOHANN, D., POTSCHEKE, P., HASSLER, R., VOIT, B. I., FROEHLING, P. E., MOSTERT, B. & LOONTJENS, J. A. (1999) Blends of amphiphilic, hyperbranched polyesters and different polyolefins. *Macromolecules*, 32, 6333-6339.

- SHERIDAN, P. F., ADOLF, D. B., LYULIN, A. V., NEELOV, I. & DAVIES, G. R. (2002) Computer simulations of hyperbranched polymers: The influence of the Wiener index on the intrinsic viscosity and radius of gyration. *Journal of Chemical Physics*, 117, 7802-7812.
- SLAGT, M. Q., STIRIBA, S. E., GEBBINK, R. J. M. K., KAUTZ, H., FREY, H. & VAN KOTEN, G. (2002) Encapsulation of hydrophilic pincer-platinum(II) complexes in amphiphilic hyperbranched polyglycerol nanocapsules. *Macromolecules*, 35, 5734-5737.
- SRIDHAR, T., NGUYEN, D. A. & FULLER, G. G. (2000) Birefringence and stress growth in uniaxial extension of polymer solutions. *Journal of Non-Newtonian Fluid Mechanics*, 90, 299-315.
- STIRIBA, S. E., KAUTZ, H. & FREY, H. (2002) Hyperbranched molecular nanocapsules: Comparison of the hyperbranched architecture with the perfect linear analogue. *Journal of the American Chemical Society*, 124, 9698-9699.
- SUN, Q. H., LAM, J. W. Y., XU, K. T., XU, H. Y., CHA, J. A. K., WONG, P. C. L., WEN, G. H., ZHANG, X. X., JING, X. B., WANG, F. S. & TANG, B. Z. (2000) Nanocluster-containing mesoporous magnetoceramics from hyperbranched organometallic polymer precursors. *Chemistry of Materials*, 12, 2617-2624.
- SUN, Q. H., XU, K. T., LAM, J. W. Y., CHA, J. A. K., ZHANG, X. X. & TANG, B. Z. (2001) Nanostructured magnetoceramics from hyperbranched polymer precursors. *Materials Science & Engineering C-Biomimetic and Supramolecular Systems*, 16, 107-112.
- TANG, L. M., QU, T., TUO, X. L., ZHANG, X. L. & LIU, D. S. (2002) Synthesis, morphology and application of alkylaryl hyperbranched polyesters. *Polymer Journal*, 34, 112-116.
- TIMOSHENKO, E. G., KUZNETSOV, Y. A. & CONNOLLY, R. (2002) Conformations of dendrimers in dilute solution. *Journal of Chemical Physics*, 117, 9050-9062.
- TODD, B. D. & DAIVIS, P. J. (2007) Homogeneous non-equilibrium molecular dynamics simulations of viscous flow: techniques and applications. *Molecular Simulation*, 33, 189-229.
- TUCKERMAN, M., BERNE, B. J. & MARTYNA, G. J. (1992) Reversible multiple time scale molecular-dynamics. *Journal of Chemical Physics*, 97, 1990-2001.
- UPPULURI, S., KEINATH, S. E., TOMALIA, D. A. & DVORNIC, P. R. (1998) Rheology of dendrimers. I. Newtonian flow behavior of medium and highly concentrated solutions of polyamidoamine (PAMAM) dendrimers in ethylenediamine (EDA) solvent. *Macromolecules*, 31, 4498-4510.
- UPPULURI, S., MORRISON, F. A. & DVORNIC, P. R. (2000) Rheology of dendrimers. 2. Bulk polyamidoamine dendrimers under steady shear, creep, and dynamic oscillatory shear. *Macromolecules*, 33, 2551-2560.

- VAN MEERVELD, J. (2004) Validity of the linear stress optical rule in mono-, bi- and polydisperse systems of entangled linear chains. *Journal of Non-Newtonian Fluid Mechanics*, 123, 259-267.
- VENERUS, D. C., ZHU, S. H. & OTTINGER, H. C. (1999) Stress and birefringence measurements during the uniaxial elongation of polystyrene melts. *Journal of Rheology*, 43, 795-813.
- WAGNER, M. H. (2006) Nonlinear rheology of polymer melts: a new perspective on finite chain extensibility effects. *Korea-Australia Rheology Journal*, 18, 199-207.
- WALES, J. L. S. (1976) *The Application of Flow Birefringence to Rheological Studies of Polymer Melts*, Delft, The Netherlands, Delft University Press.
- WANG, X. L., CHEN, J. J., HONG, L. & TANG, X. Z. (2001) Synthesis and ionic conductivity of hyperbranched poly(glycidol). *Journal of Polymer Science Part B-Polymer Physics*, 39, 2225-2230.
- WATTS, C. J. C., GRAY-WEALE, A. & GILBERT, R. G. (2007) Interpreting size-exclusion data for highly branched biopolymers by reverse Monte Carlo simulations. *Biomacromolecules*, 8, 455-463.
- WEEKS, J. D., CHANDLER, D. & ANDERSON, H. C. (1971) Role of repulsive forces in determining the equilibrium structure of simple liquids. *Journal of Chemical Physics*, 54, 5237-5247.
- WEN, Z. Y., ITOH, T., IKEDA, M., HIRATA, N., KUBO, M. & YAMAMOTO, O. (2000) Characterization of composite electrolytes based on a hyper-branched polymer. *Journal of Power Sources*, 90, 20-26.
- WIDMANN, A. H. & DAVIES, G. R. (1998) Simulation of the intrinsic viscosity of hyperbranched polymers with varying topology. 1. Dendritic polymers built by sequential addition. *Computational and Theoretical Polymer Science*, 8, 191-199.
- WOOD, W. W. & PARKER, F. R. (1957) Monte Carlo equation of state of molecules interacting with the Lennard-Jones potential. I. A. Supercritical isotherm at about twice the critical temperature. *Journal of Chemical Physics*, 27, 720-733.
- WU, H., XU, J., LIU, Y. & HEIDEN, P. (1999) Investigation of readily processable thermoplastic-toughened thermosets. V. Epoxy resin toughened with hyperbranched polyester. *Journal of Applied Polymer Science*, 72, 151-163.
- XU, J., WU, H., MILLS, O. P. & HEIDEN, P. A. (1999) A morphological investigation of thermosets toughened with novel thermoplastics. I. Bismaleimide modified with hyperbranched polyester. *Journal of Applied Polymer Science*, 72, 1065-1076.
- YANG, J. L., LIN, H. Z., HE, Q. G., LING, L. S., ZHU, C. F. & BAI, F. L. (2001) Composition of hyperbranched conjugated polymers with nanosized cadmium sulfide particles. *Langmuir*, 17, 5978-5983.

- YASUDA, K. (2006) A Multi-Mode Viscosity Model and Its Applicability to Non-Newtonian Fluids. *Journal of Textile Engineering*, 52, 171-173.
- YATES, C. R. & HAYES, W. (2004) Synthesis and applications of hyperbranched polymers. *European Polymer Journal*, 40, 1257-1281.
- ZHU, S. W. & SHI, W. F. (2002) Flame retardant mechanism of hyperbranched polyurethane acrylates used for UV curable flame retardant coatings. *Polymer Degradation and Stability*, 75, 543-547.