Prof. Dr. Michael A. R. Meier

Karlsruhe Institute of Technology (KIT)

Institute for Organic Chemistry (IOC) and
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Education and Professional History

as of 10.2010:	Full professor for Applied Chemistry at the Karlsruhe Institute of Technology (KIT), Institute of Organic Chemistry, Germany. As of 07.2019, additionally group leader at the Karlsruhe Institute of Technology (KIT), Institute of Biological and Chemical Systems – Functional Molecular Systems (IBCS-FMS), Germany.
06.2009 - 09.2010:	Juniorprofessor for sustainable organic synthesis at the University of Potsdam, Germany.
10.2006 - 12.2009:	Principal investigator of the research group "renewable raw materials" at the University of Applied Sciences Oldenburg / Ostfriesland / Wilhelmshaven, Faculty of Technology, Emden, Germany.
05.2006 - 10.2006:	Postdoc and project leader for the Dutch Polymer Institute (DPI) at the department of Chemical Engineering and Chemistry, Laboratory of Macromolecular Chemistry and Nanoscience with Prof. U. S. Schubert, Eindhoven University of Technology, The Netherlands.
05.2002 - 04.2006:	Ph.D.-student at the department of Chemical Engineering and Chemistry, Laboratory of Macromolecular Chemistry and Nanoscience with Prof. U. S. Schubert, Eindhoven University of Technology, The Netherlands. Thesis title: "Facing current challenges in (supra-) macromolecular science – a high-throughput approach –"
11.1996 - 02.2002:	study of chemistry at the University of Regensburg; diploma-thesis: "Fluorosensing of Ammonium Ions via Molecular Recognition in Polymeric Emulsion Membranes" with Prof. O. Wolfbeis, Institute of Analytical Chemistry, Chemo- & Biosensors, University of Regensburg, Germany.
06.1995:	general qualification for university entrance from the Apian Gymnasium in Ingolstadt, Germany (Abitur).

Awards and honors

11/2006:	***Golden Thesis Award 2006*** from the *Dutch Polymer Institute* (DPI)
11/2009	***H. P. Kaufmann Prize*** of the *Deutsche Gesellschaft für Fettwissenschaft*
09/2010	***Young Lipid Scientists Award*** of the *European Federation for the Science and Technology of Lipids*
09/2012	***Outstanding Young Scientists Award*** of the *BioEnvironmental Polymer Society* (BEPS)
04/2013	***Young Scientist Research Award*** of the *American Oil Chemists Society* (AOCS)
05/2014	***Call (Ruf) to a chair in Polymer Chemistry*** *at the Eindhoven University of Technology (TU/e), The Netherlands; declined*
2017	***Fellow of the Royal Society of Chemistry (FRSC)***
2018	***2018 Materials Today EPJ Award*** (3rd place, awarded 05/2019 in Budapest)
04/2019	***Call (Ruf) to a chair in Organic and Macromolecular Chemistry*** *at the Johannes Gutenberg-Universität (JGU, Mainz, Germany) in combination with a GFK-Fellowship; declined*
2023	*Coating Science International:* ***CoSi Science Award 2023***

Current scientific activities (past activities available upon request)

- Associate Editor of ACS Sustainable Chemistry & Engineering (03/2018 -)
- Member of the selection committee of the Wöhler-Preis für Nachhaltige Chemie (GDCh) and the Carl-Roth-Förderpreis (committee chair, GDCh)
- Wiley Polymer Scientific Advisory Board, representative for Macromolecular Chemistry and Physics (10/22 -)
- Member of the editorial (advisory) boards of (alphabetic order): European Journal of Lipid Science and Technology, Global Challenges, Macromolecular Chemistry and Physics, Macromolecular Rapid Communications, Tetrahedron Chem, Journal of Applied Polymer Science, Journal of Renewable Materials.

Professional Societies

- American Chemical Society
- Gesellschaft Deutscher Chemiker e.V.
- Deutsche Gesellschaft für Fettwissenschaft
- European Federation for the Science and Technology of Lipids
- Bioenvironmental Polymer Society (BEPS)

Refereed journal publications

Publication statistics according to *Web of Science* by Clarivate Analytics
[search: Author=(Meier MAR), all databases]:
h-index: 64; times cited: 15911 (data obtained on 10th of October 2024)

(262) P. Conen, M.A.R. Meier* Reactivities and mechanisms in organic reactions involving activation of elemental sulfur under basic conditions, *Tetrahedron Chem* **2024***, 11*, 100086.

(261) P.S. Löser, A. Lamouroux, M.A.R. Meier, A. Llevot* A proof-of-concept study on a fully biobased and degradable polymer network based on vanillin and myrcene, *Polym. Chem.* **2024***, 15,* 2240-2252.

(260) S. Wegelin, M.A.R. Meier* Bio-based aromatics for chemicals and materials: Advances in renewable drop-in and functional alternatives, *Curr. Opin. Green Sustainable Chem.* **2024**, *47*, 100931.

(259) F. Mundo, S. Caillol,* V. Ladmiral,* M.A.R. Meier* On Sustainability Aspects of the Synthesis of Five-Membered Cyclic Carbonates, *ACS Sustainable Chem. Eng.* **2024**, *12*, 6452-6466.

(258) C. Libretti, L. Santos Correa, M.A.R. Meier* From waste to resource: advancements in sustainable lignin modification, *Green Chem.* **2024**, 26, 4358-4386.

(257) J.O. Wenzel, L. Santos Correa, S. Schmidt, M.A.R. Meier* Benign synthesis of terpene-based 1,4-p-menthane diamine, *Sci. Rep.* **2024**, *14*, 8055.

(256) X. Qiu, E. Pohl, Q. Cai, J. Seibert, Y. Li, S. Leopold, O. Fuhr, M.A.R. Meier, U. Schepers, S. Bräse Modulating and Accelerating Photolysis of Photoactivatable [2.2]Paracyclophane Aryl Azide in Supramolecular Host for Bioimaging, *Adv. Funct. Mater.* **2024**, 2401938.

(255) A. Kirchberg, S. Wegelin, L. Grutke, M.A.R. Meier* Unexpected Performance of Iron(III)chloride in the Polymerization of Renewable 2,3 Butanediol and the Depolymerization of Poly(ethylene terephthalate, *RSC Sustain.* **2024**, *2*, 435-444.

(254) P. Conen, R. Nickisch, M.A.R. Meier* Synthesis of highly substituted alkenes by sulfur-mediated olefination of *N*-tosylhydrazones, *Commun. Chem.* **2023**, *6*, 255.

(253) F.C.M. Scheelje, M.A.R. Meier* Non-Isocyanate Polyurethanes Synthesized from Terpenes Using Thiourea Organocatalysis and Thiol-Ene-Chemistry, *Commun. Chem.* **2023**, *6*, 239.

(252) T. Sehn, M.A.R. Meier* Structure–Property Relationships of Short Chain (Mixed) Cellulose Esters Synthesized in a DMSO/TMG/CO_2 Switchable Solvent System, *Biomacromolecules* **2023**, *24*, 5255-5264.

(251) S. Wegelin, M.A.R. Meier* Solution Self-Assembly of Branched Macromolecules Obtained via Iterative OPE Synthesis and the Passerini Three-Component Reaction, *Macromol. Chem. Phys.* **2023**, *224*, 2300337.

(250) P. Bohn, V. Hirschberg, S. Buchheiser, D. Moatsou, H. Nirschl, M.A.R. Meier* Synthesis and characterization of uniform OCL-OEG block cooligomers, *Polym. Chem.* **2023**, *14*, 4765-4773.

(249) R. Nickisch, W.M. de Vos, M.A.R. Meier, M.I. Baig* Removal of Transition-Metal Ions by Metal-Complexing Polythiosemicarbazone Membranes, *ACS Appl. Polym. Mater.* **2023**, *5*, 7240-7251.

(248) I. Ribca, B. Sochor, S.V.V. Roth, M. Lawoko, M.A.R. Meier, M. Johansson Effect of Molecular Organization on the Properties of Fractionated Lignin-Based Thiol–Ene Thermoset Materials, *ACS Omega* **2023**, *8*, 25478-25486.

(247) C. Libretti, M.A.R. Meier* Cellulose Functionalization with Methyl Ferulate in a Switchable Solvent System, *Macromolecules* **2023**, *56*, 7532-7542.

(246) I. Ribca, B. Sochor, M. Betker, S.V. Roth, M. Lawoko, O. Sevastyanova, M.A.R. Meier, M. Johansson Impact of lignin source on the performance of thermoset resins, *Eur. Polym. J.* **2023**, *194*, 112141.

(245) J. Wolfs, F.C.M. Scheelje, O. Matveyeva, M.A.R. Meier* Determination of the degree of substitution of cellulose esters via ATR-FTIR spectroscopy, *J. Polym. Sci.* **2023**, *61*, 2697.

(244) J. Wolfs, I. Ribca, M.A.R. Meier,* M. Johansson* Polythionourethane Thermoset Synthesis via Activation of Elemental Sulfur in an Efficient Multicomponent Reaction Approach, *ACS Sustainable Chem. Eng.* **2023**, *11*, 3952-3962.

(243) F.C.M. Scheelje, F.C.C. Destaso, H. Cramail,* M.A.R. Meier* Nitrogen-Containing Polymers Derived from Terpenes: Possibilities and Limitations, *Macromol. Chem. Phys.* **2023**, *224*, 2200403.

(242) L. Santos Correa, M.A.R. Meier* Ruthenium Catalyzed Oxidative Cleavage of High Oleic Sunflower Oil: Considerations Regarding the Synthesis of a Fully Biobased Triacid, *Eur. J. Lipid Sci. Tech.* **2023**, *125*, 2200171.

(241) M. Rhein, S. Zarbakhsh, M.A.R. Meier* Further Insights into the Catalytic Reduction of Aliphatic Polyesters to Polyethers, *Macromol. Chem. Phys.* **2023**, *224*, 2200289.

(240) P. Bohn, M.P. Weisel, J. Wolfs, M.A.R. Meier* Molecular data storage with zero synthetic effort and simple read-out, *Sci. Rep.* **2022**, *12*, 13878.

(239) M. Rhein, A. Demharter, B. Felker, M.A.R. Meier* A Fully Biobased Aromatic Polyester Polyol for Polyisocyanurate Rigid Foams: Poly(diethylene furanoate), *ACS Appl. Polym. Mat.* **2022**, *4*, 6514-6520.

(238) R. Nickisch, P. Conen, M.A.R. Meier* Polythiosemicarbazones by Condensation of Dithiosemicarbazides and Dialdehydes, *Macromolecules* **2022**, 55, 3267-3275.

(237) A. Travanut, P.F. Monteiro, S. Smith, S.M. Howdle, A.M. Grabowska, B. Kellam, M.A.R. Meier, C. Alexander* Passerini chemistries for synthesis of polymer pro-drug and polymersome drug delivery nanoparticles, *J. Mater. Chem. B* **2022**, *10*, 3895-3905.

(236) A. Kirchberg, M. Khabazian Esfahani, M.-C. Röpert, M. Wilhelm, M.A.R. Meier* Sustainable Synthesis of Non-Isocyanate Polyurethanes Based on Renewable 2,3-Butanediol, *Macromol. Chem. Phys.* **2022**, 2200010.

(235) J. T. Windbiel, M.A.R. Meier* RAFT Polymerization of a Renewable Ricinoleic Acid-Derived Monomer and Subsequent Post-Polymerization Modification via the Biginelli-3-Component Reaction, *Macromol. Chem. Phys.* **2022**, 2100360.

(234) J. Wolfs, R. Nickisch, L. Wanner, M.A.R. Meier* Sustainable One-Pot Cellulose Dissolution and Derivatization via a Tandem Reaction in the DMSO/DBU/CO_2 Switchable Solvent System, *J. Am. Chem. Soc.* **2021**, *143*, 18693-18702.

(233) K.A. Waibel, D. Barther, T. Malliaridou, D. Moatsou, M.A.R. Meier* One-Pot Synthesis of Thiocarbamates, *Eur. J. Org. Chem.* **2021**, 4508-4516.

(232) J. Wolfs, M.A.R. Meier* A more sustainable synthesis approach for cellulose acetate using the DBU/CO_2 switchable solvent system, *Green Chem.* **2021**, *23*, 4410-4420.

(231) Y. S. Raupp, P. S. Löser, S. Behrens, M.A.R. Meier* Selective Catalytic Epoxide Ring-Opening of Limonene Dioxide with Water, *ACS Sustainable Chem. Eng.* **2021**, *9*, 7713-7718.

(230) M. Heidari, K.N. Onwukamike, E. Grau, S. Grelier, H. Cramail,* M.A.R. Meier,* A. Greiner* Direct electrospinning of cellulose in the DBU-CO2 switchable solvent system, *Cellulose* **2021**, *28*, 6869-6880.

(229) U. Biermann, U.T. Bornscheuer, I, Feussner, M.A.R. Meier,* J.O. Metzger Fatty Acids and their Derivatives as Renewable Platform Molecules for the Chemical Industry, *Angew. Chem. Int. Ed.* **2021**, *60*, 20144.

(228) D. Hahn, R.V. Schneider, E. Foitzik, M.A.R. Meier* A Practical and Efficient Synthesis of Uniform Conjugated Rod-Like Oligomers, *Macromol. Rapid Commun.* **2021**, *42*, 2000735.

(227) P.B.V. Scholten, G. Cartigny, B. Grignard, A. Debuigne, H. Cramail, M.A.R. Meier,* C. Detrembleur* Functional Polyethylenes by Organometallic-Mediated Radical Polymerization of Biobased Carbonates, *ACS Macro Lett.* **2021**, *10*, 313-320.

(226) A. Kirchberg, M.A.R. Meier* Regeneration of Cellulose from a Switchable Ionic Liquid: Toward More Sustainable Cellulose Fibers*, Macromol. Chem. Phys.* **2021**, *222*, 2000433.

(225) R. Nickisch, P. Conen, S.M. Gabrielsen, M.A.R. Meier* A more sustainable isothiocyanate synthesis by amine catalyzed sulfurization of isocyanides with elemental sulfur*, RSC Adv.* **2021**, *11*, 3134-3142.

(224) A. Travanut, P.F. Monteiro, S. Oelmann, S.M. Howdle, A.M. Grabowska, P.A. Clarke, A.A. Ritchie, M.A.R. Meier,* C. Alexander* Synthesis of Passerini-3CR Polymers and Assembly into Cytocompatible Polymersomes, *Macromol. Rapid Commun.* **2021**, *42*, 2000321.

(223) E. Esen, P. Hädinger, M.A.R. Meier* Sustainable Fatty Acid Modification of Cellulose in a CO_2-Based Switchable Solvent and Subsequent Thiol-Ene Modification*, Biomacromolecules* **2021**, 22, 5586-593.

(222) L. Filippi, M.A.R. Meier* Fully Renewable Non-Isocyanate Polyurethanes via the Lossen Rearrangement*, Macromol. Rapid Commun.* **2021**, *42*, 2000440.

(221) K.A. Waibel, D. Moatsou, M.A.R. Meier* Synthesis and Encapsulation of Uniform Star-Shaped Block-Macromolecules*, Macromol. Rapid Commun.* **2021**, *42*, 2000467.

(220) T. Windbiel, M.A.R. Meier* Synthesis of new Biginelli polycondensates: renewable materials with tunable high glass transition temperatures*, Polym. Int.* **2021**, *70*, 506-513.

(219) M. Frölich, D. Hofheinz, M.A.R. Meier* Reading mixtures of uniform sequence-defined macromolecules to increase data storage capacity*, Commun. Chem.* **2020**, *3*, 184.

(218) R. Nickisch, S.M. Gabrielsen, M.A.R. Meier* Novel Access to Known and Unknown Thiourea Catalyst via a Multicomponent-Reaction Approach*, ChemistrySelect* **2020**, *5*, 11915.

(217) E. Esen, M.A.R. Meier* Sustainable Functionalization of 2,3-Dialdehyde Cellulose via the Passerini Three-Component Reaction*, ACS Sustainable Chem. Eng.* **2020***, 8*, 15755-15760.

(216) R.V. Schneider, A. Sehlinger, M.A.R. Meier* A Direct One-Pot Modification of β-Cyclodextrin via the Ugi-Five-Component Reaction*, ChemistrySelect* **2020***, 5,* 10765.

(215) P.B.V. Scholten, D. Moatsou, C. Detrembleur, M.A.R. Meier* Progress Toward Sustainable Reversible Deactivation Radical Polymerization*, Macromol. Rapid Commun.* **2020***, 41,* 2000266.

(214) A.S. Abd-El-Aziz, M. Antonietti, C. Barner-Kowollik, W.H. Binder, A. Böker, C. Boyer, M.R. Buchmeiser, S.Z.D. Cheng, F. D'Agosto, G. Floudas, H. Frey, G. Galli, J. Genzer, L. Hartmann,* R. Hoogenboom, T. Ishizone, D.L. Kaplan, M. Leclerc, A. Lendlein, B. Liu, T.E. Long, S. Ludwigs, J.-F. Lutz, K. Matyjaszewski, M.A.R. Meier,* K. Müllen, M. Müllner, B. Rieger, T.P. Russell, D.A. Savin, A.D. Schlüter, U.S. Schubert, S. Seiffert, K. Severing, J.B. P. Soares, M. Staffilani,* B.S. Sumerlin, Y. Sun, B.Z. Tang, C. Tang, P. Theato, N. Tirelli, O. K. C. Tsui, M.M. Unterlass, P. Vana, B. Voit, S. Vyazovkin, C. Weder, U. Wiesner, W.-Y. Wong, C. Wu, Y. Yagci, J. Yuan, G. Zhang The Next 100 Years of Polymer Science*, Macromol. Chem. Phys.* **2020***, 221,* 2000216.

(213) K.S. Wetzel, M. Frölich, S. C. Solleder, R. Nickisch, P. Treu, M.A.R. Meier* Dual sequence definition increases the data storage capacity of sequence-defined macromolecules*, Commun. Chem.* **2020***, 3,* 63.

(212) P.S. Löser, P. Rauthe, M.A.R. Meier,* A. Llevot* Sustainable catalytic rearrangement of terpene-derived epoxides: towards bio-based biscarbonyl monomers*, Phil. Trans. R. Soc. A* **2020***, 378,* 0190267.

(211) O. Franco,* M. Jakoby, R.V. Schneider, F. Hundemer, D. Hahn, B.S. Richards, S. Bräse, M.A.R. Meier, U. Lemmer, I.A. Howard* Sensitizing TADF Absorption Using Variable Length Oligo(phenylene ethynylene) Antennae*, Front. Chem.* **2020***, 8,* 126.

(210) K. Waibel, R. Nickisch, N. Möhl, R. Seim, M.A.R. Meier* A more sustainable and highly practicable synthesis of aliphatic isocyanides, *Green Chem.* **2020**, *22,* 933-941.

(209) E. Esen, M.A.R. Meier* Modification of Starch via the Biginelli Multicomponent Reaction, *Macromol. Rapid Commun.* **2020**, *41*, 1900375.

(208) P. Bohn, M.A.R. Meier* Uniform poly(ethylene glycol): a comparative study, *Polym. J.* **2020**, *52*, 165-178.

(207) P.B.V. Scholten, B.M. Özen, Z. Söyler, J.-M. Thomassin, M. Wilhelm, C. Detrembleur, M.A.R. Meier* Rheological and mechanical properties of cellulose/LDPE composites using sustainable and fully renewable compatibilisers, *J. Appl. Polym. Sci.* **2019**, 48744.

(206) J. Demarteau, P.B.V. Scholtenm A. Kermagoret, J. De Winter, M.A.R. Meier, V. Monteil, A. Debuigne,* C. Detrembleur* Functional Polyethylene (PE) and PE-Based Block Copolymers by Organometallic-Mediated Radical Polymerization, *Macromolecules* **2019**, *52*, 9053-9063.

(205) O.R. Schade, P.-K. Dannecker, K.F. Kalz, D. Steinbach, M.A.R. Meier,* J.-D. Grunwadt* Direct Catalytic Route to Biomass-Derived 2,5-FurandicarboxylicAcid and Its Use as Monomer in a Multicomponent Polymerization, *ACS Omega* **2019**, *4*, 16972-16979.

(204) X. Guo, K.S. Wetzel, S.C. Solleder, S. Spann, M.A.R. Meier, M. Wilhelm, B. Luy, G. Guthausen* ^{1}H-PFG-NMR Diffusion Study on a Sequence-Defined Macromolecule: Confirming Monodispersity, *Macromol. Chem. Phys.* **2019**, *220*, 1900155.

(203) P.-K. Dannecker, M.A.R. Meier* Facile and Sustainable Synthesis of Erythritol bis(carbonate), a Valuable Monomer for Non-Isocyanate Polyurethanes (NIPUs), *Sci. Rep.* **2019**, *9*, 9858.

(202) J.O. Holloway, K.S. Wetzel, S. Martens, F.E. Du Prez,* M.A.R. Meier* Direct comparison of solution and solid phase synthesis of sequence-defined macromolecules, *Polym. Chem.* **2019**, *10,* 3859-3867.

(201) G. Klein, A. Llevot,* P. Löser, B. Bitterer, J. Helfferich, W. Wenzel, C. Barner-Kowollik, M.A.R. Meier* On the macrocyclization selectivity of meta-substituted diamines and dialdehydes: towards macrocycles with tunable functional peripheries, *J. Incl. Phenom. Macrocycl. Chem.* **2019**, *95*, 119-134.

(200) K.S. Wetzel, M.A.R. Meier* Monodisperse, sequence-defined macromolecules as a tool to evaluate the limits of ring-closing metathesis, *Polym. Chem.* **2019**, *10,* 2716-2722.

(199) A. Llevot,* M.A.R. Meier Perspective: green polyurethane synthesis for coating applications, *Polym. Int.* **2019**, *68,* 826-831.

(198) M.A.R. Meier,* C. Barner-Kowollik*A New Class of Materials: Sequence-Defined Macromolecules and Their Emerging Applications, *Adv. Mater.* **2019**, *1806027.*

(197) P.-K. Dannecker, U. Biermann,* A. Sink, F.R. Bloesser, J.O. Metzger, M.A.R. Meier* Fatty Acid–Derived Aliphatic Long Chain Polyethers by a Combination of Catalytic Ester Reduction and ADMET or Thiol-Ene Polymerization, *Macromol. Chem. Phys.* **2019**, *220,* 1800440.

(196) K.N. Onwukamike, L. Lapuyade, L. Maillé, S. Grelier, E. Grau, H. Cramail,* M.A.R. Meier* Sustainable Approach for Cellulose Aerogel Preparation from the DBU–CO_2 Switchable Solvent, *ACS Sustainable Chem. Eng.* **2019**, *7*, 3329-3338.

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(189) M. von Czapiewski, M. Rhein, M.A.R. Meier* Fatty Acid Derived Renewable Platform Chemicals via Selective Oxidation Processes*, ACS Sustainable Chem. Eng.* **2018**, *6*, 15170-15179.

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(184) A. C. Boukis, M.A.R. Meier* Data storage in sequence-defined macromolecules via multicomponent reactions*, Eur. Polym. J.* **2018**, *104*, 32-38.

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