

List of publications

ARTICLES

- [55] U. Hahn, J.-F. Nierengarten, “The copper-catalyzed alkyne-azide cycloaddition for the construction of fullerene-porphyrin conjugates”, *J. Porphyrins Phthalocyanines* **2016**, *20*, in press.
- [54] F. Setaro, R. Ruiz-González, S. Nonell, U. Hahn, T. Torres, “Synthesis, Photophysical Studies and $^1\text{O}_2$ Generation of Ruthenium Phthalocyanine Dendrimers”, *J. Porphyrins Phthalocyanines* **2016**, *20*, 378-387.
- [53] M. Lederer, U. Hahn, J.-M. Strub, S. Cianféroni, A. Van Dorsselaer, J.-F. Nierengarten, T. Torres, D. M. Guldi, “Probing supramolecular interactions between a crown ether appended zinc phthalocyanine and an ammonium group appended to a C_{60} derivative”, *Chem. Eur. J.* **2016**, *22*, 2051-2059.
- [52] I. D. Kellner, U. Hahn, M. Dürr, T. Torres, I. Ivanovic-Burmazovic, T. Drewello, “Aggregation of a crown ether decorated zinc-phthalocyanine by collision-induced desolvation of electro spray droplets”, *J. Phys. Chem. A* **2015**, *119*, 11454-11460.
- [51] M. Lederer, U. Hahn, J. Fernández-Ariza, O. Trukhina, M. S. Rodríguez-Morgade, C. Dammann, T. Drewello, T. Torres, D. M. Guldi, “Tuning electron donor-acceptor hybrids by alkali metal complexation”, *Chem. Eur. J.* **2015**, *21*, 5916-5925.
- [50] F. Setaro, M. Brasch, U. Hahn, M. S. T. Koay, J. J. L. M. Cornelissen, A. de la Escosura, T. Torres, “Generation-dependent templated self-assembly of biohybrid protein nanoparticles around photosensitizer dendrimers”, *Nano Lett.* **2015**, *15*, 1245-1251.
- [49] G. Rousseau, C. Lavenn, L. Cardenas, S. Loidant, Y. Wang, U. Hahn, J.-F. Nierengarten, A. Demessence, “One-pot synthesis of sub-3 nm gold nanoparticle networks connected by thio-based multidentate fullerene adducts”, *Chem. Commun.* **2015**, 6730-6733.
- [48] L. E. Sánchez Contreras, J. Zirzmeier, S. V. Kirner, F. Setaro, F. Martínez, S. Lozada, P. Escobar, U. Hahn, D. M. Guldi, T. Torres, “Cholesteryl oleate-appended phthalocyanines as potential photosensitizers in the treatment of leishmaniasis”, *J. Porphyrins Phthalocyanines* **2015**, *19*, 320-328.
- [47] F. Monti, U. Hahn, E. Pavoni, B. Delavaux-Nicot, J.-F. Nierengarten, N. Armaroli, “Homoleptic and heteroleptic Ru^{II} complexes with extended phenanthroline-based ligands”, *Polyhedron* **2014**, *82*, 122-131.
- [46] F. Setaro, R. Ruiz-González, S. Nonell, U. Hahn, T. Torres, “Synthesis, photophysical studies and $^1\text{O}_2$ generation of carboxylate-terminated zinc phthalocyanine dendrimers”, *J. Inorg. Biochem.* **2014**, *136*, 170-176.
- [45] T. H. Phan, S. Breuer, U. Hahn, D. T. Pham, T. Torres, K. Wandelt, “Unusual demetallation and ordered adsorption of a pyridine-appended zinc phthalocyanine at metal-electrolyte interfaces studied

- by in-situ scanning tunneling microscopy and X-ray photoelectron spectroscopy”, *J. Phys. Chem. C* **2014**, *118*, 457-467.
- [44] U. Hahn, H. Lülfi, H. D. F. Winkler, C. A. Schalley, F. Vögtle, L. De Cola, “Encapsulation of luminescent homoleptic $[\text{Ru}(\text{dpp})_3]^{2+}$ -type chromophores within an amphiphilic dendritic environment”, *Chem. Eur. J.* **2012**, *18*, 15424-15432.
- [43] U. Hahn, F. Vögtle, J.-F. Nierengarten, “Synthetic strategies towards fullerene-rich dendrimer assemblies”, *Polymers* **2012**, *4*, 501-538.
- [42] G. Bergamini, J. Molloy, A. Fermi, P. Ceroni, F.-G. Klärner, U. Hahn, “Diazapyrenium cored dendrimers: electron poor guests for a molecular clip host”, *New J. Chem.* **2012**, *36*, 354-359.
- [41] U. Hahn, J.-F. Nierengarten, F. Vögtle, B. Delavaux-Nicot, F. Monti, C. Chiorboli, N. Armaroli, “Fullerodendrimers with a perylenediimide core”, *New J. Chem.* **2011**, *35*, 2234-2244.
- [40] U. Hahn, T. Torres, “Amphiphilic zinc phthalocyanine dendrimers by the click chemistry approach”, *J. Porphyrins Phthalocyanines* **2011**, *15*, 364-372.
- [39] U. Hahn, F. Setaro, X. Ragàs, A. Gray-Weale, S. Nonell, T. Torres, “Microenvironment-switchable singlet oxygen generation by axially-coordinated hydrophilic ruthenium phthalocyanine dendrimers”, *Phys. Chem. Chem. Phys.* **2011**, *13*, 3385-3393.
- [38] U. Hahn, S. Engmann, C. Oelsner, C. Ehli, D. M. Guldi, T. Torres, “Immobilizing water-soluble dendritic electron donors and electron acceptors – phthalocyanines and perylenediimides – onto single wall carbon nanotubes”, *J. Am. Chem. Soc.* **2010**, *132*, 6392-6401.
- [37] G. de la Torre, G. Bottari, U. Hahn, T. Torres, “Functional phthalocyanines: synthesis, nanostructuring, and electrooptical applications”, *Struct. Bond.* **2010**, *135*, 1-44.
- [36] B. Baytekin, H. T. Baytekin, U. Hahn, W. Reckien, B. Kirchner, C. A. Schalley, “Dendrimer disassembly in the gas phase: a cascade fragmentation of Fréchet dendrimers”, *Chem. Eur. J.* **2009**, *33*, 7319-7149.
- [35] U. Hahn, F. Vögtle, G. De Paoli, M. Staffilani, L. De Cola, “Long-lived luminescent dendrimers with a $[\text{Ru}(\text{dpp})_3]^{2+}$ -type core: synthesis and photophysical properties”, *Eur. J. Inorg. Chem.* **2009**, 2639-2646.
- [34] U. Hahn, J.-F. Nierengarten, F. Vögtle, A. Listorti, F. Monti, N. Armaroli, “Fullerene-rich dendrimers: divergent synthesis and photophysical properties”, *New J. Chem.* **2009**, *33*, 337-344.
- [33] U. Hahn, M. S. Rodríguez-Morgade, “Triazolehemiporphyrazines: azaporphyrins with intrinsic low symmetry”, *J. Porphyrins Phthalocyanines* **2009**, *13*, 456-460.
- [32] H. Stephan, S. Juran, K. Born, P. Comba, G. Geipel, U. Hahn, N. Werner, F. Vögtle, “Hydrophilic oxybathophenanthroline ligands: synthesis and copper(II) complexation”, *New J. Chem.* **2008**, *32*, 2016-2022.

- [31] C. G. Claessens, U. Hahn, T. Torres, "Phthalocyanines: From outstanding electronic properties to emerging applications", *Chem. Rec.* **2008**, *8*, 75-97.
- [30] B. Delavaux-Nicot, A. Kaeser, U. Hahn, A. Gégout, P.-E. Brandli, C. Duhayon, Y. Coppel, A. Saquet, J.-F. Nierengarten, "Organotin chemistry for the preparation of fullerene-rich nanostructures", *J. Mater. Chem.* **2008**, *18*, 1547-1554.
- [29] S. Fias, P. W. Fowler, J.-L. Delgado de la Cruz, U. Hahn, P. Bultinck, "Correlation of delocalization indices and current-density maps in polycyclic aromatic hydrocarbons", *Chem. Eur. J.* **2008**, *14*, 3093-3099.
- [28] U. Hahn, A. R. Hirst, J. L. Delgado de la Cruz, A. Kaeser, B. Delavaux-Nicot, J.-F. Nierengarten, D. K. Smith, "Modular construction and hierarchical gelation of organooxotin nanoclusters derived from simple building blocks", *Chem. Commun.* **2007**, 4943-4945.
- [27] J. A. Camerano, M. A. Casado, U. Hahn, J.-F. Nierengarten, E. Maisonhaute, C. Amatore, "Fullerodendrimers with a tris-isocyanate core allowing their anchoring onto gold surfaces", *New J. Chem.* **2007**, *31*, 1395-1399.
- [26] U. Hahn, F. Cardinali, J.-F. Nierengarten, "Supramolecular chemistry for the self-assembly of fullerene-rich dendrimers", *New J. Chem.* **2007**, *31*, 1128-1138.
- [25] K. Hosomizu, H. Imahori, U. Hahn, J.-F. Nierengarten, A. Listorti, G. Accorsi, N. Armaroli, T. Nemoto, S. Isoda, "Dendritic effects on structure and photophysical and photoelectrochemical properties of fullerene dendrons and their nanoclusters", *J. Phys. Chem. C* **2007**, *111*, 2777-2786.
- [24] U. Hahn, E. Maisonhaute, C. Amatore, J.-F. Nierengarten, "Fullerene-rich nanoclusters resulting from the cobalt-catalyzed cyclotrimerization of bis-arylalkyne fullerodendrimers", *Angew. Chem.* **2007**, *119*, 969-972; *Angew. Chem. Int. Ed.* **2007**, *46*, 951-954.
- [23] U. Hahn, A. Gégout, C. Duhayon, Y. Coppel, A. Saquet, J.-F. Nierengarten, "Self-assembly of fullerene-rich nanostructures with a stannoxane core", *Chem. Commun.* **2007**, 516-518.
- [22] O. Moudam, F. Ajamaa, A. Ekouaga, H. Mamlouk, U. Hahn, M. Holler, R. Welter, J.-F. Nierengarten, "A new synthetic route for the preparation of 1,10-phenanthroline derivatives", *Eur. J. Org. Chem.* **2007**, 417-419.
- [21] H. Herschbach, K. Hosomizu, U. Hahn, E. Leize, A. Van Dorsselaer, H. Imahori, J.-F. Nierengarten, "Electrospray mass spectrometry analysis of dendritic branches bearing peripheral fullerene subunits", *Anal. Bioanal. Chem.* **2006**, *386*, 46-51.
- [20] J. L. Delgado de la Cruz, U. Hahn, J.-F. Nierengarten, "Synthesis of fullerene-substituted oligo(phenylenebutadienyl)", *Tetrahedron Lett.* **2006**, *47*, 3715-3718.
- [19] J.-F. Nierengarten, U. Hahn, A. Trabolsi, H. Herschbach, F. Cardinali, M. Elhabiri, E. Leize, A. Van Dorsselaer, A.-M. Albrecht-Gary, "Synthesis of fullerodendrons with an ammonium unit at the focal

- point and their cooperative self-assembly on a fluorescent ditopic crown ether receptor”, *Chem. Eur. J.* **2006**, *12*, 3365-3373.
- [18] V. Balzani, P. Ceroni, C. Giansante, U. Hahn, F.-G. Klärner, U. Müller, W. M. Müller, C. Verhaelen, V. Vicinelli, F. Vögtle, “Host-guest complexes between an aromatic molecular tweezer and symmetric and unsymmetric dendrimers with a 4,4'-bipyridinium core”, *J. Am. Chem. Soc.* **2006**, *128*, 637-648.
- [17] U. Hahn, A. Kaufmann, M. Nieger, O. Julinek, M. Urbanova, F. Vögtle, “Preparation and chiroptical studies of dendritic alkaloid derivatives”, *Eur. J. Org. Chem.* **2006**, 1237-1244.
- [16] J.-F. Nierengarten, U. Hahn, T. M. Figueira Duarte, F. Cardinali, N. Solladié, M. E. Walther, A. Van Dorsselaer, H. Herschbach, E. Leize, A.-M. Albrecht-Gary, A. Trabolsi, M. Elhabiri, “Ammonium-crown ether interactions for the construction of fullerene-containing photoactive supramolecular devices”, *C. R. Chimie* **2006**, *9*, 1022-1030.
- [15] U. Hahn, K. Hosomizu, H. Imahori, J.-F. Nierengarten, “Synthesis of dendritic branches with peripheral fullerene subunits”, *Eur. J. Org. Chem.* **2006**, 85-91.
- [14] U. Hahn, M. Elhabiri, A. Trabolsi, H. Herschbach, E. Leize, A. Van Dorsselaer, A.-M. Albrecht-Gary, J.-F. Nierengarten, “Supramolecular click chemistry with a bis-ammonium-C₆₀ substrate and a ditopic crown ether host”, *Angew. Chem.* **2005**, *117*, 5472-5475; *Angew. Chem. Int. Ed.* **2005**, *44*, 5338-5341.
- [13] U. Hahn, J. J. González, E. Huerta, M. Segura, J.-F. Eckert, F. Cardinali, J. de Mendoza, J.-F. Nierengarten, “A highly directional fourfold hydrogen-bonding motif for supramolecular structures through self-assembly of fullerodendrimers”, *Chem. Eur. J.* **2005**, *11*, 6666-6672.
- [12] V. Balzani, P. Ceroni, C. Giansante, V. Vicinelli, F.-G. Klärner, C. Verhaelen, F. Vögtle, U. Hahn, “Tweezering the core of a dendrimer: host-guest complexes between aromatic molecular tweezers and dendrimers with a 4,4'-bipyridinium core”, *Angew. Chem.* **2005**, *117*, 4650-4654; *Angew. Chem. Int. Ed.* **2005**, *44*, 4574-4578.
- [11] H. Stephan, G. Geipel, G. Bernhard, U. Hahn, F. Vögtle, “Synthesis and binding properties of dendritic oxybathophenanthroline ligands towards copper(II)”, *Eur. J. Inorg. Chem.* **2005**, 4501-4508.
- [10] M. Elhabiri, A. Trabolsi, F. Cardinali, U. Hahn, A.-M. Albrecht-Gary, J.-F. Nierengarten, “Cooperative recognition of C₆₀-ammonium substrates by a ditopic oligophenylenevinylene/crown ether host”, *Chem. Eur. J.* **2005**, *11*, 4793-4798.
- [9] C. A. Schalley, C. Verhaelen, F.-G. Klärner, U. Hahn, F. Vögtle, “Gas-phase host-guest chemistry of dendritic viologens with molecular tweezers: a remarkably strong dendritic effect on dication stability”, *Angew. Chem.* **2005**, *117*, 481-485; *Angew. Chem. Int. Ed.* **2005**, *44*, 477-480.
- [8] H. Stephan, G. Geipel, G. Bernhard, U. Hahn, F. Vögtle, “Formation of stable Cu(II)-complexes with dendritic oxybathophenanthroline ligands”, *Wissenschaftl.-Tech. Ber.* **2005**, FZR-424, 59.

- [7] A. D'Aléo, R. M. Williams, F. Osswald, P. Edamana, U. Hahn, J. van Heyst, F. D. Tichelaar, F. Vögtle, L. De Cola, "Oligothia-dendrimers for the formation of gold nanoclusters", *Adv. Funct. Mater.* **2004**, *14*, 1167-1177.
- [6] A. Dirksen, U. Hahn, F. Schwanke, J. N. H. Reek, R. M. Williams, F. Vögtle, L. De Cola, "Multiple recognition of barbiturate guests by Hamilton-receptor-functionalized dendrimers", *Chem. Eur. J.* **2004**, *10*, 2036-2047.
- [5] H. Stephan, H. Spies, B. Johannsen, K. Gloe, U. Hahn, F. Vögtle, "A widely branched transport system. Radiolabelled intelligent nanomolecules for cancer therapy", *Wissenschaftl.-Tech. Ber. 2002* **2003**, *FZR-327*, 29-33.
- [4] U. Hahn, M. Gorka, F. Vögtle, V. Vicinelli, P. Ceroni, M. Maestri, V. Balzani, "Light harvesting dendrimers. Efficient intra- and intermolecular energy transfer processes in a species containing sixtyfive chromophoric groups of four different types", *Angew. Chem.* **2002**, *114*, 3747-3750; *Angew. Chem. Int. Ed.* **2002**, *41*, 3595-3598.
- [3] O. Trapp, G. Trapp, U. Hahn, F. Vögtle, V. Schurig, "Probing the stereointegrity of Tröger's base – A dynamic electrokinetic chromatographic study", *Chem. Eur. J.* **2002**, *8*, 3629-3634.
- [2] U. Herrmann, T. Jonischkeit, J. Bargon, U. Hahn, Q. Y. Li, C. A. Schalley, E. Vogel, F. Vögtle, "Monitoring apple flavor by use of quartz microbalance", *Anal. Bioanal. Chem.* **2002**, *372*, 611-614.
- [1] P. Ceroni, V. Vicinelli, M. Maestri, V. Balzani, W. M. Müller, U. Müller, U. Hahn, F. Osswald, F. Vögtle, "Dendrimers with a 4,4'-bipyridinium core and electron-donor branches. Electrochemical and spectroscopic properties", *New J. Chem.* **2001**, *25*, 989-993.

BOOK CHAPTERS

- [3] U. Hahn, J.-F. Nierengarten, "Fullerene dendrimers", in S. Kobayashi, K. Müllen (Eds.) *Encyclopedia of Polymeric Nanomaterials*, Springer, Berlin, Heidelberg, **2015**, 818-829.
- [2] U. Hahn, D. González-Rodríguez, T. Torres, "Phthalocyanine functionalized carbon nanostructures", in K. Kadish, F. D'Souza (Eds.) *Handbook on Carbon Nano Materials – Fundamentals and Applications*, World Scientific, Singapore, **2011**, Vol. 1, Chapter 3, 59-99.
- [1] F. Vögtle, G. Pawlitzki, U. Hahn, "Hetera (Cyclo-) Phanes", in H. Hopf, R. Gleiter (Eds.) *Modern Cyclophane Chemistry*, Wiley-VCH, Weinheim, **2004**, 41-80.