

Scientific Production Prof. Dominique Armspach Professor at the University of Strasbourg
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● **Peer-reviewed articles in international journals**

- [1] *Oxidation of the triterpenic hopane skeleton by peracids*
P. Bissere, D. Armspach, S. Neunlist, M. Rohmer*, *Tetrahedron Lett.* **1990**, 45, 6523-6526.
- [2] *The self-assembly of catenated cyclodextrins*
D. Armspach, P. R. Ashton, C. P. Moore, N. Spencer, J. F. Stoddart*, T. J. Wear, D. J. Williams, *Angew. Chem. Int. Ed.* **1993**, 32, 854-858.
- [3] *Cyclodextrins: 'linking lampshades'*
D. Armspach, P. R. Ashton, N. Spencer, J. F. Stoddart*, D. J. Williams, *Pestic. Sci.* **1994**, 41, 232-235.
- [4] *Catenated cyclodextrins*
D. Armspach, P. R. Ashton, R. Ballardini, V. Balzani, A. Godi, C. P. Moore, L. Prodi, N. Spencer, J. F. Stoddart*, M. S. Tolley, T. J. Wear, D. J. Williams, *Chem. Eur. J.* **1995**, 1, 33-55.
- [5] *Carboranyl cluster-functionalised ligands for metallocupramolecular chemistry*
D. Armspach, E. C. Constable*, C. E. Housecroft*, M. Neuburger, M. Zehnder, *Supram. Chem.* **1996**, 7, 97-100.
- [6] *Cluster-functionalised ligands; metal-cluster interactions and nuclearity changes in carboranyl-2,2':6',2''-terpyridines*
D. Armspach, E. C. Constable*, C. E. Housecroft*, M. Neuburger, M. Zehnder, *New J. Chem.* **1996**, 20, 331-335.
- [7] *Boron-rich metallodendrimers — mix-and-match assembly of multi-functional metallocupramolecules.*
D. Armspach, M. Cattalini, E. C. Constable, C. E. Housecroft, D. Phillips, *Chem. Commun.* **1996**, 1823-1824.
- [8] *Bucky-ligands: fullerene-substituted oligopyridines for metallocupramolecular chemistry.*
D. Armspach, E. C. Constable*, F. Diederich*, C. E. Housecroft, J.-F. Nierengarten, *Chem. Commun.* **1996**, 2009-2010.
- [9] *Carbaborane-functionalised 2,2':6',2''-terpyridine ligands for metallocupramolecular chemistry: Syntheses, complex formation, and the crystal and molecular structures of 4'-(ortho-carboranyl)-2,2':6',2''-terpyridine and 4'-(ortho-carboranylpropoxy)-2,2':6',2''-terpyridine.*
D. Armspach, E. C. Constable*, C. E. Housecroft*, M. Neuburger, M. Zehnder, *J. Organometal. Chem.* **1998**, 550, 193-206.
- [10] *Bucky ligands: synthesis, ruthenium(II) complexes, and electrochemical properties*
D. Armspach, E. C. Constable*, F. Diederich*, C. E. Housecroft, J.-F. Nierengarten, *Chem. Eur. J.* **1998**, 4, 723-733.
- [11] *The tris(4-tert-butylphenyl)methyl group: a bulky substituent for effective regioselective difunctionalisation of cyclomaltohexaose*
D. Armspach, D. Matt*, *Carbohydr. Res.* **1998**, 310, 129-133.
- [12] *Metal-capped α -cyclodextrins: the crowning of the oligosaccharide torus with precious metals*
D. Armspach*, D. Matt*, *Chem. Commun.* **1999**, 1073-1074.
- [13] *The first Ru(II) bipyridyl-capped cyclodextrin. Evidence of electron-transfer through the cavity*
D. Armspach*, D. Matt*, A. Harriman, *Eur. J. Inorg. Chem.* **2000**, 1147-1150.
- [14] *Anchoring an helical handle across a cavity: the first 2,2'-bipyridyl-capped α -cyclodextrin capable of encapsulating transition metals*

- D. Armspach*, D. Matt*, N. Kyritsakas, *Polyhedron* **2001**, 663-668.
- [15] *Dicobalt cluster functionalized 2,2':6',2''-terpyridines ligands and their ruthenium(II) complexes*
E. C. Constable*, C. E. Housecroft*, L. A. Johnston, D. Armspach, M. Neuburger, M. Zehnder, *Polyhedron* **2001**, 20, 483-492.
- [16] *Metal-capped α -cyclodextrins: squaring the circle*
D. Armspach*, D. Matt*, *Inorg. Chem.* **2001**, 40, 3505-3509.
- [17] *Cyclodextrin cavities as probes for ligand-exchange processes*
E. Engeldinger, D. Armspach*, D. Matt*, *Angew. Chem. Int. Ed.* **2001**, 40, 2526-2529.
- [18] *A cyclodextrin diphosphane as a first and second coordination sphere cavitand: Evidence for weak C—H...Cl—M hydrogen bonds within metal-capped cavities*
E. Engeldinger, D. Armspach*, D. Matt*, P. G. Jones, R. Welter, *Angew. Chem. Int. Ed.* **2002**, 41, 2593-2596.
- [19] *Synthesis of large chelate rings with diphosphites built on a cyclodextrin scaffold. Unexpected formation of 1,2-phenylene-capped α -cyclodextrins*
E. Engeldinger, D. Armspach*, D. Matt*, L. Toupet, M. Wesolek, *C. R. Chim.* **2002**, 5, 359-372.
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- [20] *Selective tetrafunctionalisation of α -cyclodextrin using the supertrityl protecting group - Synthesis of the first C_2 -symmetric tetraphosphane based on a cavitand (α -TEPHOS)*
L. Poorters, D. Armspach*, D. Matt*, *Eur. J. Org. Chem.* **2003**, 1377-1381.
- [21] *Cyclodextrin-encapsulated iron catalysts for the polymerization of ethylene*
D. Armspach*, D. Matt*, F. Peruch, P. Lutz, *Eur. J. Inorg. Chem.* **2003**, 805-809.
- [22] *Cyclodextrin phosphanes as first and second coordination sphere cavitands*
E. Engeldinger, D. Armspach*, D. Matt*, P. G. Jones, *Chem. Eur. J.* **2003**, 9, 3091-3105.
- [23] *Capped cyclodextrins*
E. Engeldinger, D. Armspach*, D. Matt*, *Chem. Rev.* **2003**, 103, 4147-4174.
- [24] *Diastereospecific synthesis of phosphinidene-capped cyclodextrins leading to "introverted" ligands*
E. Engeldinger, L. Poorters, D. Armspach*, D. Matt*, L. Toupet, *Chem. Commun.* **2004**, 634-635.
- [25] *Conical cavitands as second coordination spheres and protecting environments. Towards metal-centred, intra-cavity reactions*
D. Armspach, I. Bagatin, E. Engeldinger, J. Harrowfield, C. Lejeune, D. Matt*, *J. Iran. Chem. Soc.* **2004**, 1, 10-19.
- [26] *A new approach to A,B-difunctionalisation of cyclodextrins using bulky 1,3-bis[bis(aryl)chloromethyl]benzenes as capping reagents*
D. Armspach*, L. Poorters, D. Matt*, B. Benmerad, F. Balegroune, L. Toupet, *Org. Biomol. Chem.* **2005**, 3, 2588-2592.
- [27] *Playing with podands based on cone-shaped cavities. How can a cavity influence the properties of an appended metal centre?*
C. Jeunesse, D. Armspach, D. Matt, *Chem. Commun.* **2005**, 5603-5614.
- [28] *Sulfur-capped cyclodextrins: a new class of cavitands with extroverted as well as introverted donor functionalities*
B. Benmerad, P. Clair, D. Armspach*, D. Matt*, F. Balegroune, L. Toupet, *Chem. Commun.* **2006**, 2678-2680.
- [29] *Cyclodextrin-based thiacavitands as building blocks for the construction of metallo-nanotubes*
D. Armspach*, L. Poorters, D. Matt*, B. Benmerad, P. Jones, I. Dix, L. Toupet, *J. Incl. Phenom. Macrocycl. Chem.*, **2007**, 57, 243-250.

- [30] *A metallocavitand functioning as a container for anions. Formation of non-covalent, linear assemblies mediated by a cyclodextrin-entrapped NO₃ anion*
L. Poorters, D. Armspach*, D. Matt*, L. Toupet, *Angew. Chem. Int. Ed.* **2007**, 46, 2663-2665.
- [31] *α -TEPHOS: A cyclodextrin-derived tetraphosphine for multiple metal binding*
L. Poorters, D. Armspach*, D. Matt*, L. Toupet, *Dalton Trans.* **2007**, 3195-3202.
- [32] *Synthesis of chiral, monodentate aminophosphine and phosphoramidite ligands derived from amino acid esters. Application in the Rh-catalysed asymmetric olefin hydrogenation*
L. Eberhardt, D. Armspach*, D. Matt*, L. Toupet, B. Oswald, *Eur. J. Inorg. Chem.* **2007**, 4153-4161.
- [33] *Efficient, rhodium-catalyzed hydrogenation of α -dehydroamino acid esters with chiral monodentate aminophosphanes bearing two binaphthyl groups*
L. Eberhardt, D. Armspach*, D. Matt*, L. Toupet, B. Oswald, *Eur. J. Org. Chem.* **2007**, 5395-5403.
- [34] *Chiral selectors for enantioresolution and quantitation of the antidepressant drug uoxetine in pharmaceutical formulations by ¹⁹F NMR spectroscopic method*
M. Shamsipur*, L. S. Dastjerdi, S. Haghgoo, D. Armspach, D. Matt, H. Y. Aboul-Enein, *Anal. Chim. Acta* **2007**, 601, 130-138.
- [35] *Efficient asymmetric hydrogenation of olefins with hydrazine-derived diphosphoramidites*
L. Eberhardt, D. Armspach*, D. Matt*, B. Oswald, L. Toupet, *Org. Biomol. Chem.* **2007**, 5, 3340-3346.
- [36] *Synthesis and properties of TRANS DIP, a rigid chelator built upon a cyclodextrin cavity. Is TRANS DIP an authentic trans-spanning ligand?*
L. Poorters, D. Armspach*, D. Matt*, L. Toupet, S. Choua, P. Turek, *Chem. Eur. J.* **2007**, 13, 9448-9461.
- [37] *BINOL-derived phosphoramidites in asymmetric hydrogenation: can the presence of a functionality in the amino group influence the catalytic outcome?*
L. Eberhardt, D. Armspach*, J. Harrowfield, D. Matt*, *Chem. Soc. Rev.* **2008**, 37, 839-864.
- [38] *Self-assembled monolayers of α -cyclodextrin derivatives on gold and their host-guest behavior*
A. Perl, L. Kumprecht, T. Kraus*, D. Armspach*, D. Matt, D. N. Reinhoudt, J. Huskens*, *Langmuir* **2009**, 25, 1534-1539.
- [39] *Self-mediated stereoselective oxidation of thia-capped cyclodextrins*
D. Armspach*, D. Matt*, L. Toupet, *Angew. Chem. Int. Ed.* **2009**, 48, 4555-4558.
- [40] *Crystal structure of nonadecamethylated 6A,6C-epithio-6A,6C-dideoxy- α -cyclodextrin - pentane - water (1:1:1), C₆₁H₁₀₆O₃₃S · C₅H₁₂ · H₂O*
D. Armspach*, D. Matt*, L. Toupet, *Z. Kristallogr. NCS* **2009**, 224.
- [41] *"Through-space" nuclear spin-spin couplings in ferrocenyl polyphosphanes and diphosphino cavitands: A new way of gathering structural information in constrained P(III) ligands by NMR*
J.-C. Hierso, D. Armspach*, D. Matt*, *C. R. Chim.* **2009**, 12, 1002-1013.
- [42] *A cavity-shaped diphosphane displaying "oschelating" behavior*
R. Gramage-Doria, D. Armspach*, D. Matt*, L. Toupet, *Angew. Chem. Int. Ed.* **2011**, 50, 1554-1559.
- [43] *Ditopic binding of cyclodextrin-included ligands in trigonal silver(I) complexes*
D. Armspach*, D. Matt*, L. Poorters, R. Gramage-Doria, P. Jones, *Polyhedron* **2011**, 30, 573-578.
- [44] *Regioselective double capping of cyclodextrin scaffolds*
R. Gramage-Doria, D. Rodriguez-Lucena, D. Armspach*, C. Egloff, M. Jouffroy, D. Matt*, L. Toupet, *Chem. Eur. J.* **2011**, 17, 3911-3921.
- [45] *Methylated cyclodextrins as preorganisation platforms for the synthesis of multidentate chelating ligands aimed*

at transition metal coordination and industrially relevant catalysis

D. Armspach*, D. Matt*, *C. R. Chim.* **2011**, *14*, 135-148.

- [46] *Regioselective opening of proximally sulfato-capped cyclodextrins*
M. Jouffroy, R. Gramage-Doria, D. Armspach*, D. Matt*, L. Toupet, *Chem. Commun.* **2012**, *48*, 6028-6030.
- [47] *Non-conventional coordination of cavity-confined metal centres*
R. Gramage-Doria, D. Armspach*, D. Matt*, L. Toupet, *Dalton Trans.* **2012**, *41*, 8786-8796.
- [48] *TRANS DIP: a trans-chelating ligand tailor-made for probing unusual Pd⁰ and Pd^{II} intermediates*
R. Gramage-Doria, D. Armspach*, D. Matt*, L. Toupet, *Chem. Eur. J.* **2012**, *18*, 10813-10816.
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C. Egloff, R. Gramage-Doria, M. Jouffroy, D. Armspach*, D. Matt*, L. Toupet, *C. R. Chim.* **2013**, *16*, 509-514.
- [50] *Regioselective di- and tetra-functionalisation of γ -cyclodextrin using capping methodology*
M. Jouffroy, D. Armspach*, D. Matt*, L. Toupet, *Org. Biomol. Chem.* **2013**, *11*, 3699-3705.
- [51] *Phosphane-phosphite chelators built on a α -cyclodextrin scaffold: Application in Rh-catalysed asymmetric hydrogenation and hydroformylation.*
M. Jouffroy, D. Sémeril, D. Armspach*, D. Matt*, *Eur. J. Org. Chem.* **2013**, 6069-6077.
- [52] *Metallated cavitands (calixarenes, resorcinarenes, cyclodextrins) with internal coordination sites*
R. Gramage-Doria, D. Armspach*, D. Matt*, *Coord. Chem. Rev.* **2013**, *257*, 776-816.
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M. Jouffroy, D. Armspach*, A. Louati, D. Matt*, L. Toupet, *Chem. Eur. J.* **2014**, *20*, 2565-2573.
- [54] *Confining phosphanes derived from cyclodextrins for efficient regio- and enantioselective hydroformylation.*
M. Jouffroy, R. Gramage-Doria, D. Armspach*, D. Sémeril, W. Oberhauser, D. Matt*, L. Toupet, *Angew. Chem. Int. Ed.* **2014**, *53*, 3937-3940.
- [55] *Phosphinocyclodextrins as confining units for catalytic metal centres. Applications to carbon-carbon bond forming reactions*
M. Jouffroy, R. Gramage-Doria, D. Sémeril, D. Armspach*, D. Matt*, W. Oberhauser, L. Toupet, *Beilstein J. Org. Chem.* **2014**, *10*, 2388-2405.
- [56] *Cyclodextrin and phosphorus(III): a versatile combination for coordination chemistry and catalysis*
M. Jouffroy, D. Armspach*, D. Matt*, *Dalton Trans.* **2015**, *44*, 12942-12969.
- [57] *Synthesis of optically active polystyrene catalyzed by monophosphine Pd complexes*
M. Jouffroy, D. Armspach, D. Matt, K. Osakada, D. Takeuchi*, *Angew. Chem. Int. Ed.* **2016**, *55*, 8367-8370.
- [58] *Aza-capped cyclodextrins for intra-cavity metal complexation*
D. Sechet, Z. Kaya, T.-A. Phan, M. Jouffroy, E. Bentouhami, D. Armspach*, D. Matt*, L. Toupet, *Chem. Commun.* **2017**, 11717-11720.
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Z. Kaya, L. Andna, D. Matt, E. Bentouhami, J.-P. Djukic, D. Armspach*, *Chem. Eur. J.* **2018**, *24*, 17921-17926.
- [60] *A comparative study of confining ligands derived from methylated cyclodextrins in gold-catalyzed cycloisomerization of 1,6-enynes*
Z. Kaya, L. Andna, D. Matt, E. Bentouhami, J.-P. Djukic, D. Armspach*, *Eur. J. Org. Chem.* **2019**, 4528-4537.

- [61] *Cavity-shaped ligands for asymmetric metal catalysis*
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- [62] *A cavity-shaped cis-chelating P,N ligand for highly selective nickel-catalysed ethylene dimerisation*
Y. Li, K. Pelzer, D. Sechet, G. Creste, D. Matt, P. Braunstein*, D. Armspach*, *Dalton Trans.* **2022**, 51, 11226-11230.
- [63] *Stable luminescent [Cu(NN)(PP)]⁺ complexes incorporating a β-cyclodextrin-based diphosphane ligand with metal-confining properties*
T. A. Phan, N. Armaroli, A. S. Moncada, E. Bandini, B. Delavaux-Nicot*, J. F. Nierengarten*, D. Armspach*, *Angew. Chem. Int. Ed.* **2023**, 62, e202214638.
- [64] *Enabling stereochemical communication and stimuli-responsive chiroptical properties in biphenyl-capped cyclodextrins*
G. Preda, S. Jung, G. Pescitelli, L. Cupellini, D. Armspach*, D. Pasini*, *Chem. Eur. J.* **2023**, 29, e202302376.
- [65] *Stabilization of luminescent mononuclear three-coordinate Cu^I complexes by two distinct cavity-shaped diphosphanes obtained from a single α-cyclodextrin precursor*
T. A. Phan, M. Jouffroy, D. Matt, N. Armaroli, A. Saavedra Moncada, E. Bandini, B. Delavaux-Nicot*, J. F. Nierengarten*, D. Armspach*, *Chem. Eur. J.* **2024**, 30, e202302750.
- [66] *New Pyridine dicarbene pincer ligands with ring expanded NHCs and their nickel and chromium complexes*
E. Papangelis, K. Pelzer, C. Gourlaouen*, D. Armspach, P. Braunstein*, A. A. Danopoulos*, C. Bailly, N. Tsoureas, D. T. Gerokostas, *Chem. Asian J.* **2024**, 19, e202400169.
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N. Marchenko, S. B. S. Jung, A. Pham, G. Creste, M. Aygün, J. Esvan, Y. Coppel, P. W. N. M. van Leeuwen, D. Armspach*, S. Tricard*, *Eur. J. Inorg. Chem.* **2025**, 28, e202400776.
- [68] *Cis-chelating diphosphanes for intracavity nickel(II)-catalyzed ethylene oligomerization*
Y. Li, S. Figueirêdo de Alcântara Moraes, M. Han, T.-A. Phan, G. Creste, M. Jouffroy, D. Matt, J.-P. Djukic, Y. Cornaton, P. Braunstein, K. Pelzer*, D. Armspach*, *Chem. Eur. J.* **2025**, 31, e202501188.
- [69] *A more sustainable two-step synthesis of alkylated β-cyclodextrin via acetylation and GaBr₃-catalyzed reduction*
L. J. Bartlewski, P. Conen, Q. Y. Cai, M. Bürk, D. Armspach, M. A. R. Meier*, *RSC Sustain.* **2025**, 3, 4126-4136.
- [70] *Manipulating stereo-communication in binaphthol-bridged α- and β-cyclodextrins to develop β-selective chiroptical pH switching and anion sensing in water*
G. Preda, S. L. Cognata, L. Pedraza-González, L. Carlier, M. Kolb, G. Pescitelli, V. Amendola, D. Armspach*, D. Pasini*, *Org. Chem. Front.* **2025**, 12, 6450-6459.

● **Articles in national journals**

- [71] *TRANSDIP : un trans-chélateur authentique*
L. Poorters, M. Lejeune, D. Armspach, D. Matt, *Actual. Chim.* **2009**, 326, 15-18.

● **Book chapters**

- [72] *Carborane-functionalized ligands for metallocsupramolecular chemistry*
D. Armspach, M. Cattalini, E. C. Constable, C. E. Housecroft, M. Neuburger, M. Zehnder, in *Advances in Boron Chemistry*, RSC Special Publication N°. 201, Cambridge, **1997**, p 297.
- [73] *Cyclodextrins*
D. Armspach, G. Gattuso, R. Königer, J. F. Stoddart, in *Bioorganic Chemistry: Carbohydrates* (Ed.: S. M. Hecht), Oxford University Press, New York, **1999**, p. 458.

- [74] *Coordination chemistry and catalysis (with regard to calixarenes)*
C. Wieser-Jeunesse, S. Steyer, D. Armspach, D. Matt, J. Harrowfield in *Calix 2001* (Eds: J. Vicens, Z. Asfari, J. M. Harrowfield, V. Böhmer), Kluwer Academic Publishers, Dordrecht, **2001**, p. 513.

- **Patents**

- [75] *Cyclodextrin catenane compounds capable of forming inclusion complexes*
D. Armspach, C. P. Moore, J. F. Stoddart, T. J. Wear, *US Patent* 5,438,133, **1995**.
- [76] *Aza-capped cyclodextrins and process of preparing them*
D. Armspach, D. Matt, M. Jouffroy, *Eur. Pat. Appl.* EP 3281957 A1 20180214, **2018**.

- **Proceedings**

- [77] *Phosphinidene-capped cyclodextrins – A new generation of introverted ligands.*
L. Poorters, D. Armspach, E. Engeldinger, D. Matt, *Proceedings of the 12th International Cyclodextrin Symposium*, Montpellier, France, APGI, **2004**, 73-76.
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