

RAFAL KLAJN

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PERSONAL	Born December 8 th , 1982, citizen of Poland	
EDUCATION	Northwestern University <i>McCormick School of Engineering and Applied Science</i> Ph.D. in Chemical Engineering (expected graduation date: Oct 2009) Thesis title: <i>Nanotechnology with Molecular Switches</i> Advisor: Professor Bartosz A. Grzybowski, grzybor@northwestern.edu	Aug 2004 onwards
	University of Warsaw M.Sc., <i>Summa Cum Laude</i> (Chemistry)	Sept 2001 – Jun 2004
RESEARCH EXPERIENCE	University of Wroclaw Peptide chemistry: solid-phase synthesis of new immunosuppressants Supervisor: Professor Zbigniew Szewczuk	Aug 1999 – Dec 1999
	Institute of Organic Chemistry, Polish Academy of Sciences Organic chemistry: new reactions in interfacial catalysis Supervisor: Professor Mieczyslaw Makosza	Jan 2000 – Mar 2000
	Rowland Institute at Harvard Biophysics: probing protein denaturation with NMR Supervisor: Dr. Jeffrey C. Hoch	Jun 2000 – Aug 2000
	Institute of Organic Chemistry, Polish Academy of Sciences Organic chemistry: metathesis reactions Supervisor: Dr. Karol Grela	Sep 2001 – Mar 2003
	International Institute of Molecular and Cell Biology Structural biology and peptide synthesis Supervisor: Dr. Matthias Bochtler	Apr 2003 – Jun 2004
	Cold Spring Harbor Laboratory Structural biology Supervisor: Dr. Leemor Joshua-Tor	Jun 2003 – Aug 2003
	Northwestern University Colloidal chemistry Supervisor: Professor Bartosz A. Grzybowski	Aug 2004 onwards
TEACHING EXPERIENCE	Fluid Mechanics (undergraduate course at Northwestern University) Teaching assistant to Prof. Bartosz A. Grzybowski	Aug 1999 – Dec 1999
	Thermodynamics (undergraduate course at Northwestern University) Teaching assistant to Prof. Vassily Hatzimanikatis	Sep 2005 – Dec 2005
	Advances in Biotechnology (graduate course at Northwestern University) Teaching assistant to Prof. Annelise E. Barron	Jan 2007 – Mar 2007
	Cell and Molecular Biology (undergraduate course at Northwestern University) Teaching assistant to Prof. William M. Miller	Jan 2008 – Mar 2008

AWARDS	Laureate of the National Chemistry Olympiad (Poland)	1999, 2000, 2001
	National Contest for Young Scientists (first prize)	2000
	Participant of the EU Contest for Young Scientists, Amsterdam, Netherlands	2000
	Ministry of National Education Fellowship	2001, 2002, 2003
	“School Nobel” prize in Chemistry (Poland)	2001
	Goldman Sachs Global Leader Award, London, UK	2003
	N.S.F. Materials Research Science & Engineering Center Fellowship	2006, 2007
	International Precious Metals Institute Student Award	2008

MEETINGS AND CONFERENCES	Research Science Institute, Cambridge, MA	2000
	London International Youth Science Forum, London, UK	2001
	1 st Central European Conference “Chemistry towards Biology”, Portoroz, Slovenia	2002
	Euregionale 2003, Dresden, Germany	2003
	Goldman Sachs Global Leadership Institute, London, UK	2003
	NATO ASI Course “Introduction to Bioinformatics”, Dubrovnik, Croatia	2003
	Undergraduate Research Program, Cold Spring Harbor, NY	2003
	GDCh-JCF Fruhjahrssymposium, Heidelberg, Germany	2004
	234 th American Chemical Society National Meeting, Chicago, IL	2007
	13 th International Conference on Unconventional Photoactive Systems, Evanston, IL	2007
	2 nd International Symposium on Bioinspired Engineering, Dead Sea, Israel	2007
	BASF Conference on Nanomaterials, Singapore	2007
	235 th American Chemical Society National Meeting, New Orleans, LA	2008
32 nd International Precious Metals Institute Conference, Phoenix, AZ	2008	

PATENTS

1. R. Klajn, P. J. Wesson, K. J. M. Bishop, B. A. Grzybowski, “Writing self-erasing images using metastable nanoparticle inks”.

PUBLICATIONS

1. M. Makosza, J. Przyborowski, R. Klajn, A. Kwast, „Simple synthesis of 2-substituted tetrahydrofuran-3-carbonitriles”, *Synlett* **2000**, *12*, 1773–1774.
2. A. Michrowska, M. Bieniek, M. Kim, R. Klajn, K. Grela, „Cross-metathesis reaction of vinyl sulfones and sulfoxides”, *Tetrahedron* **2003**, *59*, 4525–4531.
3. R. Klajn, M. Fialkowski, I. T. Bensemann, A. Bitner, C. J. Campbell, K. Bishop, S. Smoukov, B. A. Grzybowski, „Microcolour micropatterning of thin films of dry gels”, *Nature Mat.* **2004**, *3*, 729–735.
4. C. J. Campbell, M. Fialkowski, R. Klajn, I. T. Bensemann, B. A. Grzybowski, „Color micro- and nanopatterning with counter-propagating RD fronts”, *Adv. Mater.* **2004**, *16*, 1912–1917.
5. D. Witt, R. Klajn, P. Barski, B. A. Grzybowski, „Applications, properties, and synthesis of ω -functionalized *n*-alkanethiols and disulfides – the building blocks of self-assembled monolayers”, *Curr. Org. Chem.* **2004**, *8*, 1763–1797.
6. C. J. Campbell, R. Klajn, M. Fialkowski, B. A. Grzybowski, „One-step multilevel microfabrication by reaction-diffusion”, *Langmuir* **2005**, *21*, 418–423.
7. S. K. Smoukov, C. J. Campbell, R. Klajn, K. J. M. Bishop, B. A. Grzybowski, „Surface microstructuring by wet stamping”, *Adv. Mater.* **2005**, *17*, 1361–1365.
8. M. Fialkowski, K. J. M. Bishop, R. Klajn, S. K. Smoukov, C. J. Campbell, B. A. Grzybowski, „Principles and implementations of dissipative (dynamic) self-assembly”, *J. Phys. Chem. B* **2006**, *110*, 2482–2496.
9. K. J. M. Bishop, R. Klajn, B. A. Grzybowski, „The core and the most useful molecules of organic chemistry”, *Angew. Chem. Int. Ed.* **2006**, *45*, 5348–5354.
10. A. M. Kalsin, B. Kowalczyk, S. K. Smoukov, R. Klajn, B. A. Grzybowski, „Ionic-like behavior of oppositely charged nanoparticles”, *J. Am. Chem. Soc.* **2006**, *128*, 15046–15047.
11. M. Paszewski, S. K. Smoukov, R. Klajn, B. A. Grzybowski, „Multilevel surface nano- and microstructuring via sequential photoswelling of dichromated gelatin”, *Langmuir* **2007**, *23*, 5419–5422.
12. R. Klajn, K. J. M. Bishop, B. A. Grzybowski, „Light-controlled self-assembly of reversible and irreversible nanoparticle suprastructures”, *Proc. Natl. Acad. Sci. USA* **2007**, *104*, 10305–10309.

13. R. Klajn, K. J. M. Bishop, M. Fialkowski, M. Paszewski, C. J. Campbell, T. P. Gray, B. A. Grzybowski, „Plastic and moldable metals by self-assembly of sticky nanoparticle aggregates”, *Science* **2007**, *316*, 261–264.
14. R. Klajn, A. O. Pinchuk, G. C. Schatz, B. A. Grzybowski, „Synthesis of heterodimeric sphere-prism nanostructures via metastable gold supraspheres”, *Angew. Chem. Int. Ed.* **2007**, *42*, 8363–8367.
15. R. Klajn, T. P. Gray, P. J. Wesson, S. K. Smoukov, B. A. Grzybowski, „Bulk synthesis and surface patterning of nanoporous metals and alloys from supraspherical nanoparticle aggregates”, *Adv. Funct. Mater.* **2008**, *18*, 2763–2769.
16. Y. Wei, R. Klajn, A. O. Pinchuk, B. A. Grzybowski, “Synthesis, shape control, and optical properties of hybrid Fe₃O₄-Au “nanoflowers”, *Small* **2008**, *10*, 1635–1639.
17. M. A. Olson, A. B. Braunschweig, L. Fang, T. Ikeda, R. Klajn, A. Trabolsi, C. A. Mirkin, B. A. Grzybowski, J. F. Stoddart, “A bistable poly[2]catenane forms nanosuperstructures”, *Angew. Chem. Int. Ed.* **2009**, *48*, 1792–1797.
18. R. Klajn, L. Fang, A. Coskun, M. A. Olson, P. J. Wesson, J. F. Stoddart, B. A. Grzybowski, “Metal nanoparticles functionalized with molecular and supramolecular switches”, *J. Am. Chem. Soc.* **2009**, *131*, 4233–4235.
19. P. J. Wesson, S. Soh, R. Klajn, K. J. M. Bishop, T. P. Gray, B. A. Grzybowski, “Remote fabrication via three-dimensional reaction-diffusion: making complex core-and-shell particles and assembling them into open-lattice crystals”, *Adv. Mater.* **2009**, *21*, 1911–1915.
20. H. Nakanishi, B. Kowalczyk, A. Nitzan, K. V. Tretyakov, K. J. M. Bishop, M. M. Apodaca, R. Klajn, J. F. Stoddart, B. A. Grzybowski, “Photoconductance and inverse photoconductance in thin films of functionalized metal nanoparticles”, *Nature* **2009**, *460*, 371–375.
21. R. Klajn, P. J. Wesson, K. J. M. Bishop, B. A. Grzybowski, “Writing self-erasing images using metastable nanoparticle inks”, *Angew. Chem. Int. Ed.* **2009**, *in press*.
22. M. A. Olson, A. Coskun, R. Klajn, L. Fang, S. K. Dey, K. P. Browne, B. A. Grzybowski, J. F. Stoddart, “Assembly of polygonal clusters directed by reversible noncovalent bonding interactions”, *Nano Lett.* **2009**, *in press*.
23. R. Klajn, M. A. Olson, P. J. Wesson, L. Fang, A. Coskun, A. Trabolsi, S. Soh, J. F. Stoddart, B. A. Grzybowski, “Dynamic hook-and-eye nanoparticle sponges”, *Nature Chem.* **2009**, *in press*.
24. K. P. Browne, R. Klajn, J. A. Villa, B. A. Grzybowski, “Mechanofabrication of “pancake” and rod-like nanostructures from deformable nanoparticles aggregates”, *Small* **2009**, *in press*.
25. A. Coskun, R. Klajn, A. Trabolsi, P. J. Wesson, L. Fang, M. A. Olson, S. K. Dey, B. A. Grzybowski, J. F. Stoddart, “Molecular mechanical switching at the metal nanoparticle-solvent interface”, *J. Am. Chem. Soc.* **2009**, *submitted for publication*.