

## CURRICULUM VITAE

Samuel I. Stupp

### EDUCATION

1977 Northwestern University, Ph.D., Materials Science and Engineering

1972 University of California at Los Angeles, B.S., Chemistry

### PROFESSIONAL APPOINTMENTS

2014- Director, Center for Bio-inspired Energy Science, Northwestern University

2014- Director, Simpson Querrey Institute, Northwestern University

2012- Director, Louis A. Simpson and Kimberly K. Querrey Center for Regenerative Nanomedicine, Northwestern University

2000-2014 Director, Institute for BioNanotechnology in Medicine, Northwestern University

1999- Board of Trustees Professor of Materials Science, Chemistry, Medicine, and Biomedical Engineering, Northwestern University

1980-1999 Swanlund Professor of Materials Science and Engineering, Chemistry and Bioengineering, University of Illinois at Urbana-Champaign

1977-1980 Assistant Professor, Department of Biological Materials, Northwestern University

### Visiting Positions

2014- Distinguished Visiting Professor of Biochemistry, University of Hong Kong

2015- Visiting Professor, School of Materials Science and Engineering, Nanyang Technological University, Singapore

### SELECTED PUBLICATIONS (Over 450 Publications)

1. Stupp, S. I.; Son, S.; Lin, H. C.; Li, L. S. "Synthesis of Two-Dimensional Polymers" *Science* **1993**, 259, 59.
2. Stupp, S. I. "Promising Polymers: invited book review of *Liquid Crystalline Polymers*" *Science* **1994**, 263, 1302.
3. Stupp, S. I.; Le Bonheur, V.; Walker, K.; Li, L. S.; Huggins, K.; Keser, M.; Amstutz, A. "Supramolecular Materials: Self Organized Nanostructures" *Science* **1997**, 276, 384.
4. Braun, P. V.; Osenar, P.; Stupp, S. I. "Semiconducting Superlattices Templated by Molecular Assemblies" *Nature* **1996**, 380 (6572), 325.
5. Stupp, S. I.; Braun, P. V. "Molecular Manipulation of Microstructures: Biomaterials, Ceramics, and Semiconductors" *Science* **1997**, 277, 1242.
6. Zubarev, E. R.; Pralle, M. U.; Li, L.; Stupp, S. I. "Conversion of Supramolecular Clusters to Macromolecular Objects" *Science* **1999**, 283, 523-526.
7. Hartgerink, J. D.; Beniash, E.; Stupp, S. I. "Self-Assembly and Mineralization of Peptide-Amphiphile Nanofibers" *Science* **2001**, 294 (5547), 1684-1688.
8. Li, L.; Beniash, E.; Zubarev, E. R.; Xiang, W.; Rabatic, B. M.; Zhang, G.; Stupp, S. I. "Assembling a Lasing Medium with Supramolecular Polymers and Nanocrystals" *Nature Mater.* **2003**, 2, 689-694.
9. Silva, G. A.; Czeisler, C.; Niece, K. L.; Beniash, E.; Kessler, J. A.; Stupp, S. I. "Selective Differentiation of Neural Progenitor Cells by High-Epitope Density Nanofibers" *Science* **2004**, 303 (5662), 1352-1355.
10. Capito, R.; Azevedo, H.; Velichko, Y. R.; Mata, A.; Stupp, S. I. "Self-Assembly of Large and Small Molecules Into Hierarchically Ordered Sacs and Membranes" *Science* **2008**, 319(5871), 1812-1816.
11. Hsu, L.; Cvetanovich, G.; Stupp, S. I. "Peptide Amphiphile Nanofibers with Conjugated Polydiacetylene Backbones in their Core" *J. Am. Chem. Soc.*, 130(12), (2008) 3892-3899
12. Sofos, M.; Goldberger, J.; Stone, D. A.; Allen, J. E.; Ma, Q.; Herman, D. J.; Tsai, W.-W.; Lauhon, L. J.; Stupp, S. I. "A Synergistic Assembly of Nanoscale Lamellar Photoconductor Hybrids" *Nature Materials* **2009**, 8(1), 68-75.

13. Cui, H.; Pashuck, E. T.; Velichko, Y. S.; Weigand, S. J.; Cheetham, A. G.; Newcomb, C. J.; Stupp, S. I. "Spontaneous and X-Ray Triggered Crystallization at Long Range in Self-Assembling Filament Networks" *Science* **2010**, 327(5965), 555-559.
14. Cui, H.; Webber, M. J.; Stupp, S. I.; "Self-Assembly of Peptide Amphiphiles: From Molecules to Nanostructures to Biomaterials" *Biopolymers: Peptide Science* **2010**, 94(1), 1-18.
15. Zhang, S.; Greenfield, M. A.; Mata, A.; Palmer, L. C.; Bitton, R.; Mantei, J. R.; Aparicio, C.; Olvera de la Cruz, M.; Stupp, S. I. "A Self-Assembly Pathway to Aligned Monodomain Gels" *Nature Materials* **2010**, 9(7), 594-601.
16. Aida, T.; Meijer, E. W.; Stupp, S. I. "Functional Supramolecular Polymers" *Science* **2012**, 335(6070), 813-817.
17. Tayi, A. S.; Shveyd, A. K.; Sue, C-H.; Szarko, J. M.; Rolczynski, B. S.; Cao, D.; Kennedy, T. J.; Sarjeant, A. A.; Stern, C. L.; Paxton, W. F.; Wu, W.; Dey, S. K.; Fahrenbach, A. C.; Guest, J. R.; Mohseni, H.; Chen, L. X.; Wang, K. L.; Stoddart, J. F.; Stupp, S. I. "Room-Temperature Ferroelectricity in Supramolecular Networks of Charge-Transfer Complexes" *Nature* **2012**, 488(7412), 485-489.
18. Ortony, J. H.; Newcomb, C.; Matson, J. B.; Palmer, L. C.; Doan, P. E.; Hoffman, B. M.; Stupp, S. I. "Internal Dynamics of a Supramolecular Nanofiber" *Nature Materials* **2014**, 13, 812-816.
19. Weingarten, A. S.; Kazantsev, R. V.; Palmer, L. C.; McClendon, M.; Koltonow, A. R.; Samuel, A. P. S.; Kiebal, D. J.; Wasielewski, M. R.; Stupp, S. I. "Self-Assembling Hydrogel Scaffolds for Photocatalytic Hydrogen Production" *Nature Chemistry* **2014**, 6, 964-970.
20. Weingarten, A. S.; Kazantsev, R. V.; Palmer, L. C.; Fairfield, D. J.; Koltonow, A. R.; Stupp, S. I. "Supramolecular Packing Controls H<sub>2</sub> Photocatalysis in Chromophore Amphiphile Hydrogels" *J. Am. Chem. Soc.* **2015**, 137(48), 15241-15246. ACS EDITORS' CHOICE ARTICLE.
21. Tayi, A. S.; Kaeser, A.; Matsumoto, M.; Aida, T.; Stupp, S. I. "Supramolecular Ferroelectrics" *Nature Chemistry* **2015**, 7, 281-294.
22. Tantakitti, F.; Boekhoven, J.; Wang, X.; Kazantsev, R.; Yu, T.; Li, J.; Zhuang, E.; Zandi, R.; Ortony, J. H.; Newcomb, C. J.; Palmer, L. C.; Shekhawat, G. S.; Olvera de la Cruz, M.; Schatz, G. C.; Stupp, S. I. "Energy Landscapes and Function of Supramolecular Systems" *Nature Materials* **2016**, 15(4), 469-476.
23. Hestand, N. J.; Kazantsev, R. V.; Weingarten, A. S.; Palmer, L. C.; Stupp, S. I.; Spano, F. C. "Extended-Charge-Transfer Excitons in Crystalline Supramolecular Photocatalytic Scaffolds" *J. Am. Chem. Soc.* **2016**, 138(36), 11762-11774.
24. Yu, Z.; Tantakitti, F.; Yu, T.; Palmer, L. C.; Schatz, G. C.; Stupp, S. I. "Simultaneous Covalent and Non-Covalent Hybrid Polymerizations" *Science* **2016**, 351(6272), 497-502.
25. Harutyunyan, B.; Dannenhoffer, A.; Kewalramani, S.; Aytun, T.; Fairfield, D. J.; Stupp, S. I.; Bedzyk, M. J. "Molecular Packing of Amphiphilic Nanosheets Resolved by X-ray Scattering" *J. Phys. Chem. C* **2017**, 121(2), 1047-1054.
26. Kazantsev, R. V.; Dannenhoffer, A. J.; Weingarten, A. S.; Phelan, B. T.; Harutyunyan, B.; Aytun, T.; Narayanan, A.; Fairfield, D. J.; Boekhoven, J.; Sai, H.; Senesi, A.; O'Dogherty, P. I.; Palmer, L. C.; Bedzyk, M. J.; Wasielewski, M. R.; Stupp, S. I. "Crystal Phase Transitions and Photocatalysis in Supramolecular Scaffolds" *J. Am. Chem. Soc.* **2017**, 139(17), 6120-6127.
27. Kazantsev, R. V.; Dannenhoffer, A. J.; Aytun, T.; Harutyunyan, B.; Fairfield, D. J.; Bedzyk, M. J.; Stupp, S. I. "Molecular Control of Internal Crystallization and Photocatalytic Function in Supramolecular Nanostructures" *Chem* **2018**, 4, 1-13.
28. Freeman, R.; Han, M.; Álvarez, Z.; Lewis, J. A.; Wester, J. R.; Stephanopoulos, N.; McClendon, M. T.; Lynsky, C.; Godbe, J. M.; Sangji, H.; Luijten E.; Stupp, S. I. "Reversible Self-Assembly of Superstructured Networks" *Science* **2018**, 362 (6416), 808-813.

## SELECTED AWARDS AND HONORS

- 2020 Nanoscience Prize, International Society for Nanoscale Science, Computing, and Engineering
- 2019 Listed in Top 1% Highly Cited Researchers, Web of Science Group
- 2018 Fellow, National Academy of Inventors
- 2016 Fellow, Royal Society of Chemistry
- 2016 Royal Society of Chemistry Soft Matter and Biophysical Chemistry Award
- 2016 Elected to American Institute for Medical and Biological Engineering College of Fellows
- 2015 Member, Royal Spanish Academy of Engineering
- 2014 Thomson Reuters The World's Most Influential Scientific Minds
- 2014 International Award, The Society of Polymer Science, Japan
- 2014- President, International Scientific Committee of the Institute for Bioengineering of Catalonia, Spain
- 2014- Distinguished Visiting Professor of Biochemistry, University of Hong Kong
- 2013 Honorary Doctorate from the University of Gothenburg, Sweden
- 2012 American Chemical Society Ronald Breslow Award for Achievement in Biomimetic Chemistry
- 2012 Member, National Academy of Engineering
- 2012 Member, Royal Spanish Academy of Pharmacy
- 2011 Honorary Doctorate, National University of Costa Rica
- 2011 Thomson Reuters Top 100 Chemists for 2000-2010
- 2009 Fellow, Materials Research Society
- 2009 Honorary Doctorate from Eindhoven University of Technology for Revolutionary Research in Complex Molecular Systems, The Netherlands
- 2005 American Chemical Society Award in Polymer Chemistry
- 2004 Fellow, Biomaterials Science and Engineering, World Biomaterials Congress
- 2004 The Merck-Karl Pfister Visiting Professorship in Organic Chemistry, Department of Chemistry, Massachusetts Institute of Technology
- 2000 Materials Research Society Medal Award
- 1998 Elected member of American Academy of Arts and Sciences
- 1997 Humboldt Award for Senior U.S. Scientists
- 1991 Department of Energy Prize for Outstanding Scientific Accomplishment in Materials Chemistry
- 1991 Fellow, American Physical Society