

Bo Chen

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Education

Jun 2007 Northwestern University, Evanston, IL
Ph.D in Physics. Advisor: William. P. Halperin

Jun 2001 Beijing University, Beijing, China
B. S. in Physics

Appointments

May 2017 – present University of Central Florida, Orlando, FL
Associate professor

Aug 2011 – May 2017 University of Central Florida, Orlando, FL
Assistant professor

Jun 2008 – Jul 2011 National Institutes of Health, Bethesda, MD
Research fellow
Advisor: Robert Tycko

Jul 2007 – Jun 2008 National Institutes of Health, Bethesda, MD
Visiting fellow
Advisor: Robert Tycko

UCF honors and awards

Mar 2020	UCF	Mid-Career Refreshment Award
May 2016	UCF	COS Dean's Rising Star Award
May 2012	UCF	InHouse Awards

National Honors and awards

March 2013	AFOSR	Young Investigator Program Award
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Publications (students in Bo Chen's group are marked with *)

1. Chengyi Xu, Nabin Kandel*, Xin Qiao*, MD Imran Khan*, Preeta Pratakshya, **Bo Chen**, and Alon Gorodetsky, "Long-range proton transport in films from a reflectin concatemer", under review.
2. Serrano A, Qiao X*, Matos JO, Farley L, Cilenti L, **Chen B**, Tatulian SA, Teter K. "Reversal of Alpha-Synuclein Fibrillization by Protein Disulfide Isomerase". *Frontiers in Cell and Developmental Biology*, 8:726 (2020).
3. Yuxing Liao, Chao Li, Xiaobing Lou, Xiaoshi Hu, Yanqun Ning, Fengyi Yuan, **Bo Chen**, Ming Shen, and Bingwen Hu. "Carbon-coated Li₃V₂(PO₄)₃ derived from metal-organic framework as cathode for lithium-ion batteries with high stability", *Electrochimica Acta*, 271:608-616 (2018).
4. Jaekyun Jeon*, Xin Qiao*, Ivan Hung, Alok K. Mitra, Ambroise Desfosses, Daniel Huang*, Peter L. Gor'kov, Rebecca C. Craven, Richard L. Kingston, Zhehong Gan, Fangqiang Zhu, and **Bo Chen**. "Structural model of the tubular assembly of the Rous Sarcoma virus capsid protein", *J. Am. Chem. Soc.*, 139(5):2006-2013 (2017).
5. **Bo Chen**. "HIV capsid assembly, mechanism and structure". Invited article for Current Topics in *Biochem. J.*, 55(18): 2539-52 (2016).

6. Xin Qiao*, Jeon J*, Weber J*, Fangqiang Zhu, and **Bo Chen**. “Construction of a novel coarse grain model for simulations of HIV capsid assembly to capture the backbone structure and inter-domain motions in solution”. *Data in brief*, 5:506-512(2015).
7. Xin Qiao*, Jaekyun Jeon*, Jeff Weber*, Fangqiang Zhu, and **Bo Chen**. “Mechanism of polymorphism and curvature of HIV capsid assemblies probed by 3D simulations with a novel high resolution coarse grain model”, *Biochim. Biophys. Acta, Gen. Subj.*, 1850(11):2353-67(2015).
8. Fangqiang Zhu, and **Bo Chen**. “Monte carlo simulations of HIV capsid protein homodimer.” *J. Chem. Inf. Model.*, 55(7):1361-8(2015).
9. Xin Qiao*, Jaekyun Jeon*, Amy Cole, Jason O. Matos*, Stephany Bautista* Justin Castillo*, Ivan Hung, Zhehong Gan, Suren A. Tatulian, Alexander M. Cole, and **Bo Chen**. “Morphology-dependent HIV-enhancing effect of semen-derived enhancer of viral infection”, *Biophys. J.*, 108(8):2028-37(2015).
10. Jason O. Matos, Greg Goldblatt, Jaekyun Jeon*, **Bo Chen** and Suren Tatulian. “Pyroglutamylated Amyloid-b peptide reverses cross b-sheets by a prion-like mechanism”, *J. Phys. Chem B*, 118, 5637-5643(2014).
11. Marvin J Bayro, **Bo Chen**, Wau-Ming Yau and Robert Tycko. “Site-specific structural and dynamical variations accompanying tubular assembly of the HIV-capsid protein”, *J. Mol. Biol.*, 426, 1109-1127 (2014).
12. Gongpu Zhao, Juan R. Perilla, Ernest L. Yufenyuy, Xin Meng, **Bo Chen**, Jiying Ning, Jinwoo Ahn, Angela M. Gronenborn, Klaus Schulten, Christopher Aiken, and Peijun Zhang, “Mature HIV-1 capsid structure by cryo-electron microscopy and all-atom molecular dynamics”, *Nature*, 497, 643-646 (2013).
13. Jaekyun Jeon*, Michael S. Lodge, Ben D. Dawson, Masa Ishigami, Frank Shewmaker, and **Bo Chen**, “Superb resolution and contrast of transmission electron microscopy images of non-stained biological samples on graphene-coated grids”, *Biochim. Biophys. Acta, Gen. Subj.*, 1830, 3807-3815 (2013).
14. Suren Tatulian, Pranav Garg, Kathleen Nemec, **Bo Chen**, and Annette Khaled, “Molecular basis for membrane pore formation by bax protein carboxyl terminus”, *Biochem. J.*, 51, 9406 (2012).
15. **Bo Chen**, and Robert Tycko, “Simulated self-Assembly of the HIV-1 capsid: protein shape and native contacts are sufficient for two-dimensional lattice formation”, *Biophys. J.*, 100, 3035 (2011).
16. **Bo Chen**, and Robert Tycko, “Structural and dynamical characterization of tubular HIV-1 capsid protein assemblies by solid state nuclear magnetic resonance and electron microscopy”, *Protein Sci.*, 19, 716 (2010).
17. **Bo Chen**, Kent R. Thurber, Frank Shewmaker, Reed B. Wickner, and Robert Tycko, “Measurement of amyloid fibril mass-per-length by tilted-beam transmission electron microscopy”, *Proc. Natl. Acad. Sci. U. S. A.*, 106, 14339 (2009).
18. Frank Shewmaker, Dmitry Kryndushkin, **Bo Chen**, Robert Tycko, and Reed B. Wickner, “Two prion variants of Sup35p have in-register parallel β -sheet structures, independent of hydration”, *Biochemistry*, 48, 5074 (2009).
19. **Bo Chen**, Sutirtha Mukhopadhyay, W. P. Halperin, Prasenjit Guptasarma, and D. G. Hinks, “Evidence for intrinsic impurities in the high-temperature superconductor $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$ from ^{17}O nuclear magnetic resonance”, *Phys. Rev. B*, 77, 052508 (2008).
20. **Bo Chen**, W. P. Halperin, Prasenjit Guptasarma, D. G. Hinks, V. F. Mitrovic, A. P. Reyes, and P. L. Kuhns, “Two- dimensional vortices in superconductor ”, *Nature Phys.*, 3, 239 (2007).
21. **Bo Chen**, Pratim Sengupta, Eric E. Sigmund, and W. P. Halperin, “Anisotropy and penetration depth of MgB_2 from ^{11}B NMR”, *New J. Phys.*, 8, 274 (2006).
22. **Bo Chen**, Eric E. Sigmund, and W. P. Halperin, “Stokes-Einstein relation in supercooled aqueous solutions of glycerol”, *Phys. Rev. Lett.*, 96, 145502 (2006).

Book:

1. Fundamentals of recoupling and decoupling techniques in solid state NMR, Bo Chen, AIP Publishing, Melville, New York, Nov 2, 2020.

Recent Invited Presentations**University Seminars:**

1. “*Structural characterization of the Rous sarcoma virus capsid protein in its tubular assembly and simulation of the self-assemblies of the HIV capsid protein*”, Feb 22, 2019, Department of Chemical Engineering and Materials Science, University of California, Irvine.
2. “*Solid state NMR characterization of biomolecular materials*”, Sept 14, 2018, College of Pharmacy, USF.
3. “*Solid state NMR study of biomolecular and condensed matter materials*”, Jan 3, 2018, Department of Physics, Shanghai Key Lab of Magnetic Resonance, East China Normal University, Shanghai, China.
4. “*Structural model of the tubular assembly of Rous sarcoma virus capsid protein*”, Dec 25, 2017, Beihang University Vision Forum for International Young Scholars, Beijing, China.
5. “*Structural model of the tubular assembly of Rous sarcoma virus capsid protein*”, Feb 17, 2017, Department of Physics, University of Central Florida, Orlando, FL.
6. “*Structural model of the tubular assembly of Rous sarcoma virus capsid protein*”, Dec 26, 2016, National Key Laboratory of Biotherapy, Sichuan University, Chengdu, China.
7. “*Structural model of the tubular assembly of Rous sarcoma virus capsid protein*”, Dec 19, 2016, Wuhan Institute of Physics and Mathematics, Chinese Academy of Science, Wuhan, China.
8. “*Structural characterization of the rous sarcoma virus capsid protein in its tubular assembly and simulations of the self-assemblies of the HIV capsid protein*”, Mar 21, 2016, University of Florida, Gainesville, FL
9. “*Studies of the self-assembly of rouse sarcoma virus capsid protein by TEM, ssNMR and coarse-grain simulation*”, Dec 7-11, 2015, Destin, FL
10. “*Studies of the self-assembly of rouse sarcoma virus capsid protein by TEM, ssNMR and coarse-grain simulation*”, May 28, 2015, Shanghai Tech University, Shanghai, China

Invited Conference Presentations:

1. “*A site specific comparison of the pentameric and hexameric assembly of the Rous sarcoma virus capsid protein*”, 48th South East Magnetic Resonance Conference, Gainesville, FL, Oct 26, 2019.
2. “*Mechanism of the polymorphism and curvature control of the HIV capsid protein assemblies probed by a novel grain model*”, ACS Spring 2019 National Meeting & Exposition, Orlando, FL, March 31, 2019.
3. “*Structural characterization of the Rous sarcoma virus capsid protein in its tubular assembly*”, 2018 FAME, TAMPA, FL, May 4, 2018.
4. “*Structural characterization of the Rous sarcoma virus capsid protein in its tubular assembly*”, 2018 IVAN ENC-conference users meeting, Orlando, FL, Apr 28, 2018.
5. “*Mechanism of the polymorphism and curvature control of the HIV capsid protein assemblies probed by a novel coarse grain model*”, FAME, Tampa, FL, May 7, 2016.
6. “*Studies of the self-assembly of rous sarcoma virus capsid protein by TEM, ssNMR and coarse-grain simulations*”, Southeast Magnetic Resonance Conference, Daytona, FL, Oct 10, 2015.

7. “*Studies of the self-assembly of Rous Sarcoma Virus capsid protein by TEM, SSNMR and coarse-grain simulations*”, The 3rd Montagne Ste Genevieve Workshop on NMR of Biological Solids, IBPC, Paris, France, Sept. 13 2013.

Contributed Conference Presentations:

1. “*Using universal design for learning to enhance accessibility in students centered STEM courses, the 4th Annual colloquium on Teaching and Learning Innovation, Deland, FL, Apr 6, 2018*”
2. “*Structure model of the tubular assembly of Rous Sarcoma virus capsid protein*”, Southeast Magnetic Resonance Conference, Atlanta, GA, Oct 14, 2014.
3. “*Superb resolution and contrast of transmission electron microscopy images of non-stained biological samples on graphene-coated grid*”, Poster, 57th Biophysical Society Annual Meeting, Philadelphia, PA, Feb 6, 2013
4. “*CryoEM structure of HIV-1 capsid: insights into the assembly mechanism*”, Authors: Gongpu Zhao, Xin Meng, Ernest Yufenyuy, Juan Perilla, Jinwoo Ahn, Klaus Schulten, Angela M. Gronenborn, Bo Chen, Christopher Aiken and Peijun Zhang, Poster presented by collaborator Peijun Zhang’s postdoc Gongpu Zhao at Structural Biology Related to HIV/AIDS-2012, NIH, Bethesda, Maryland, Jun 18 to 19, 2012.
5. “*Simulated self-assembly of the HIV-1 capsid: protein shape and native contacts are sufficient for two-dimensional lattice formation*”, Presentation, 6th Annual NIDDK Fellow’ Scientific Retreat, Apr 7-8, 2011, Bethesda, MD.
6. “*Structural and dynamical characterization of tubular HIV-1 capsid protein assembly by solid state NMR and electron microscopy and assembly simulation by a novel coarse grain model*”, Poster, 52nd Rocky Mountain Conference on Solid-State NMR, Aug 1-5, 2010; Snowmass, CO.
7. “*Structural and dynamical characterization of tubular HIV-1 capsid protein assembly by solid state NMR and electron microscopy*”, Poster, 2nd US-CA Winter School on Biomolecular SolidState NMR, Jan 2010; Stowe, Vermont.
8. “*A solid state NMR study of WECO peptide*”, Poster, 1st US-CA Winter School on Biomolecular SolidState NMR, Jan 2008; Stowe, Vermont.
9. “*Impurity effect from ¹⁷O NMR study in single crystal Bi₂Sr₂CaCu₂O_{8+δ}*”, Presentation, American Physical Society March Meeting, Mar 5-9, 2007; Denver, Colorado.
10. “*Vortex order from ¹⁷O NMR study in single crystal Bi₂Sr₂CaCu₂O_{8+δ}*”, Brown Bag lunch Seminar at Northwestern University, Oct 2006; Evanston, IL.
11. “*Vortex phase diagram from ¹⁷O NMR study in single crystal Bi₂Sr₂CaCu₂O_{8+δ}*”, Poster, American Physical Society March Meeting, Mar 13-17, 2006; Baltimore, Maryland.
12. “*Vortex phase diagram from ¹⁷O NMR study in single crystal Bi₂Sr₂CaCu₂O_{8+δ}*”, Poster, Gordon Research Conference on Superconductivity, Jan 22-27, 2006; Santa Ynez Valley, California.
13. “*Anisotropy and penetration depth in MgB₂*”, Presentation, International ICAM Workshop NMR/EPR of correlated Electron Superconductors, Oct 15-21, 2005; Dresden, Germany.
14. “*Diffusion study of the glycerol and heavy water binary mixtures and breakdown of the Stokes-Einstein Relation*”, Poster, Gordon Research Conference on Magnetic Resonance, Jun 5-10, 2005; New London, Connecticut.

15. "*Penetration depth and anisotropy of MgB₂ from ¹¹B NMR*", Presentation, American Physical Society March Meeting, Mar 3-7, 2003; Austin, Texas.