

Biographical Sketch: SINAN KETEN, PH.D.

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A. PROFESSIONAL PREPARATION

Bogazici University (Turkey)	Civil Engineering	B.S., June 2005
Massachusetts Institute of Technology	Civil and Environmental Engineering	ME., June 2006
Massachusetts Institute of Technology	Civil and Environmental Engineering	Ph.D., June 2010

B. APPOINTMENTS

Director of Graduate Studies, Mechanical Engineering, Northwestern University, since September 2017.

Associate Professor (with tenure) of Mechanical Engineering and Civil & Environmental Engineering, Northwestern University, since September 2016.

Assistant Professor of Mechanical Engineering (joint appointment with Civil & Environmental Engineering), Northwestern University, since September 2010.

C. PUBLICATIONS (* indicates corresponding author, 100 peer-reviewed articles, total citations = 3514, h-index= 28 [Google Scholar])

Five Publications Most Relevant to This Proposal

1. N. Hansoge, T. Huang, R. Sinko, W. Xia, W. Chen*, **S. Ketten***, "Materials by Design for Stiff and Tough Hairy Nanoparticle Assemblies", *ACS NANO*, 2018, 2 (8), pp 7946–7958.
2. E. DeBenedictis, E. Hamed, **S. Ketten***, "Mechanical Reinforcement of Proteins with Polymer Conjugation", *ACS NANO*, 2016, 10 (2), pp 2259–2267. (Cover Article)
3. E. DeBenedictis, J. Liu, **S. Ketten***, "Adhesion Mechanisms of Curli Subunit CsgA to Abiotic Surfaces", *Science Advances*, 2016, 2, e1600998.
4. K. C. Dansuk, **S. Ketten***, "Tunable seat belt behavior in nanocomposite interfaces inspired from bacterial adhesion pili", 2018, *Soft Matter*, 14, pp. 1530-1539 (Cover Article).
5. Xia, J. Song, C. Jeong, D. D. Hsu, F. R. Phelan Jr., J. F. Douglas*, **S. Ketten***, Energy-Renormalization for Achieving Temperature Transferable Coarse-Graining of Polymer Dynamics, *Macromolecules*, 2017, 50 (21), pp 8787–8796.

Five Other Significant Publications

6. B. Natarajan, A. Krishnamurthy, X. Qin, C.D. Emiroglu, A. Forster, E.J. Foster, C. Weder, D. M. Fox, **S. Ketten**, J. Obrzut, J.W. Gilman, "Binary Cellulose Nanocrystal Blends for Bioinspired Damage Tolerant Photonic Films", 2018, *Advanced Functional Materials*, 28, 1800032.
7. L. Ruiz, W. Xia, Z. Meng and **S. Ketten*** "A Coarse-Grained Model for the Mechanical Behavior of Multi-layer Graphene", *Carbon*, 2015, 82, pp. 103-115.
8. P. Egan, R. Sinko, P. LeDuc*, **S. Ketten*** "The role of mechanics in biological and synthetic bioinspired systems", *Nature Communications*, 2015, 6. (Invited Review).
9. W. Xia, J. Song, D. Hsu, **S. Ketten***, "Understanding the Interfacial Mechanical Response of Nanoscale Polymer Thin Films via Nanoindentation", 2016, *Macromolecules*, 49 (10), pp 3810–3817.
10. **S. Ketten**, Z. Xu, B. Ihle, M. J. Buehler, "Nanoconfinement controls stiffness, strength and mechanical toughness of β -sheet crystals in silk", *Nature Materials*, 2010, 9, p. 359-367.

D. AWARDS AND HONORS

- JMBBM Early Career Researcher Award (2018)
- Society of Engineering Science Young Investigator Award (2018)
- NAE US Frontiers of Engineering Symposium Participant (2017)
- Presidential Early Career Award for Scientists and Engineers (PECASE) (2017)
- Fellow, American Physical Society (Division of Polymer Physics) (2016)
- Office of Naval Research Young Investigator Program Award (ONR YIP) (2015)
- SEARLE Fellow for Teaching Excellence (2014)
- ASME Applied Mechanics Division Haythornthwaite RIG Award (2012)
- MRS Graduate Student Award (2009)
- MIT Presidential Graduate Fellowship (2006)

E. SYNERGISTIC ACTIVITIES

- **Societal Activities:** Program Chair, SES Meeting, 2019, *Chair, Midwest Mechanics and Materials Workshop, 2016, (Mid.Mech.Mat), Vice-Chair, ASCE EMI Molecular Scale Modeling & Experimentation Committee, 2013, Track Chair, ASME NEMB 2015, Multiscale Modeling, Associate Track Chair, World Congress of Biomechanics, 2014, Track secretary and co-chair, Multiscale Modeling and Experiment in Biology and Medicine, ASME NEMB 2013, Symposium organizer in ASME IMECE, ASCE EMI and SES Meetings 2011-2018; Member of ASCE EMI Biomechanics and ASME Soft Materials Committees, MRS Task force on landscapes and opportunities.*
- **Editorial Activities:** Associate Editor for *NPJ Computational Materials*, Member of the editorial board for *BioNanoScience*, *Scientific Reports* and *ACS Biomaterials Science and Engineering* journals; peer reviewer for 30+ journals including *Science* and *Nature* titles.
- **Panel Service:** Panelist for NSF Biomechanics and Mechanobiology Program, NSF Mechanics of Materials Program, NSF Materials Engineering and Processing Program, NSF Design of Engineering Material Systems Program, NSF Structural Materials and Mechanics Program, NSF DMREF Program, NIH Predictive Multiscale Models for Biomedical, Biological, Behavioral, Environmental and Clinical Research (U01; External Proposal Reviewer for NSF EPSCoR, DOE Biomolecular Materials Program, NSF SSE SI2 Program.
- **Invited/Keynote/Plenary Lectures:** 60+ invited/keynote/plenary lectures, including invited seminars in universities such as MIT, Cornell, Harvard, Berkeley, Brown, Columbia University, University of Illinois, ETH; and invited talks at MRS, APS, and ACS meetings.