

# Center for Soft Matter and Biological Physics Symposium

## Scientific Program

Wednesday, May 17, 2017 (Hahn Hall North Auditorium)

8:20 Opening, Uwe Täuber

### Session I: Justin Barone, Chair

8:30 – 9:30 Jennifer Curtis, Fabricated and synthetic hyaluronan polymer brushes for tissue regulation and biomaterials

9:30 – 10:00 Chenggang Tao, Interfaces and defects in atomically thin materials

10:00 – 10:30 Coffee Break

10:30 – 11:00 Rana Ashkar, Response of membrane fluctuations to protein binding and insertion

10:30 – 11:00

11:00 – 11:30 Lou Madsen, Combining a Kevlar-like polymer with ionic liquids to enable safer and higher density batteries

11:30 – 1:00 Lunch

### Session II: Uwe Täuber, Chair

1:00 – 2:00 Sergei Sheiko, Polymer genome for strategic design of tissue-like materials

2:00 – 2:30 Yang Cao, Multiscale stochastic simulation and the budding yeast cell cycle model

2:30 – 2:45 James Hanna, Flexible structures

2:45 – 3:15 Jing Chen, Spatiotemporal model for pattern formation in phage-bacteria system

3:30 – 5:00 **Poster Session and Refreshments**

*Department of Physics*

Center for Soft Matter  
and Biological Physics

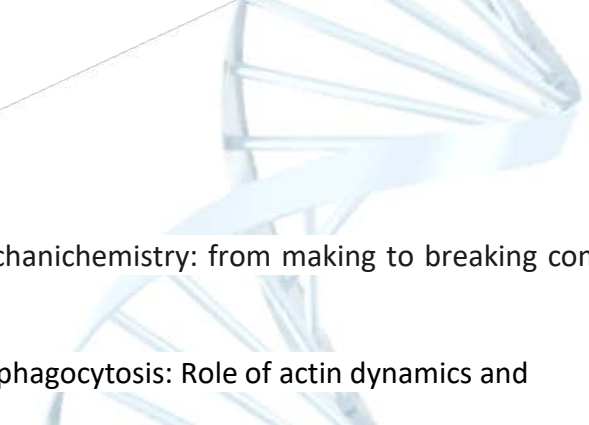
VT Chemistry

 VirginiaTech.  
College of Science

# Center for Soft Matter and Biological Physics Symposium

## Graduate Student Workshop

Thursday, May 18, 2017 (Hahn Hall North Auditorium)

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- 9:00 – 9:25** Refreshments
- 9:25 – 9:30** Opening, Uwe Täuber
- 9:30 – 10:30** Break
- 9:30 – 10:30** Sergei Sheiko, Molecular mechanichemistry: from making to breaking complex architectures
- 10:30 – 11:30** Jennifer Curtis, Mechanics of phagocytosis: Role of actin dynamics and curvature

### Posters

1. Spatiotemporal model for pattern formation in phage-bacteria system, Xiaochu Li, Floricel Gonzalez, Birgit Scharf, Jing Chen
2. The spatiotemporal network dynamics of acquired resistance in engineered microecological systems, Udaya Sree Datla, Will Mather
3. Big data analysis of differential production within toxin-antitoxin systems, Heather Deter, Will Mather
4. Crosstalk between diverse synthetic protein degradation tags in *Escherichia coli*, Nicholas Butzin, Will Mather
5. Avalanches in neural networks, Jacob Carroll, Uwe Täuber
6. Vortex dynamics in type-II superconductors, Harsh Chaturvedi, Uwe Täuber
7. A computational study of biodiversity, Sheng Chen, Uwe Täuber
8. A numerical study of the two-dimensional complex Ginzburg-Landau Equation, Weigang Liu, Uwe Täuber

9. Evaporation of solutions containing charged polymers: A molecular dynamics study, Chengyuan Wen, Shengfeng Cheng
10. Stratification in binary mixtures of nanoparticles induced by solvent evaporation: A molecular dynamics study, Yanfei Teng, Shengfeng Cheng
11. Cyclic predator-prey games of six species, Bart Brown, Shadi Esmaili, Michel Pleimling
12. Physical aging in a system composed of coupled Kuramoto oscillators, Shadi Esmaili, Michel Pleimling
13. Molecular basis of ligand binding by the endosomal adaptor protein TOM1, Chuanhui Chen, Wen Xiong, Daniel Capelluto, Chenggang Tao
14. Effect of chain length on the crystallization of linear polyethylene, Hadi Mohammadi, Herve Marand
15. Protein-polymer nanocomposites, Barb DeButts, Justin Barone
16. Protein self-assembly in polar polymer environments of varying viscosity, Laura Hanzly, Justin Barone
17. TBD, Yang Cao's group
18. Circadian alternative polyadenylation of Sppl3 gene, Chuanli Zhou, Kerry Gendreau, and Shihoko Kojima
19. Understanding molecular transport and dynamics in soft materials: Ion conductors, polymeric micelles, and structured liquids, Andrew Korovich, Curt Zanelotti, Rui Zhang, Xiuli Li, Lam Thieu, Deyang Yu, and Louis A. Madsen
20. Structural, thermodynamic, and phosphatidylinositol 3-phosphate binding properties of Phafin2, Tuo Xian, Daniel Capelluto
21. Structural properties of disordered proteins from molecular dynamics simulations, Parviz Seifpanah, Saeed Izadi, Alexey Onufriev
22. Accuracy limit of rigid n-point water models, Yeyue Xiong, Alexey Onufriev
23. Nucleic acid condensation by multivalent ions: DNA vs. RNA, Igor S. Tolokh, Alexey V. Onufriev
24. Network reliability: A measure to study diffusive dynamics on networks, Madhurima Nath, Yihui Ren, Stephen Eubank

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25. Impact of hydration and collective dynamics on protein functions, Ali Charkhesht, Vinh Nguyen
26. Terahertz spectroscopy of nanoscale systems and biomaterials, Ali Charkhesht, Vinh Ho, Vinh Nguyen