

THE TRIANGLE CYTOSKELETON MEETING



SEPTEMBER 29TH-30TH 2019

@ THE HAW RIVER BALLROOM, SAXAPAHAW NC

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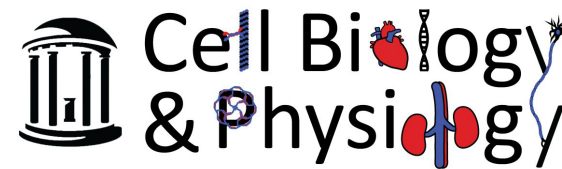
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MEETING ORGANIZERS

*Kira Heikes
Reem Hakeem
Zayna King
Stephanie Hempstead
Shawn Van Bruggen*

WITH SPECIAL THANKS TO:

*Delphine Bull - UNC Chapel Hill
Zhang Zhen - University of Singapore
Sophia Tintori - New York University*

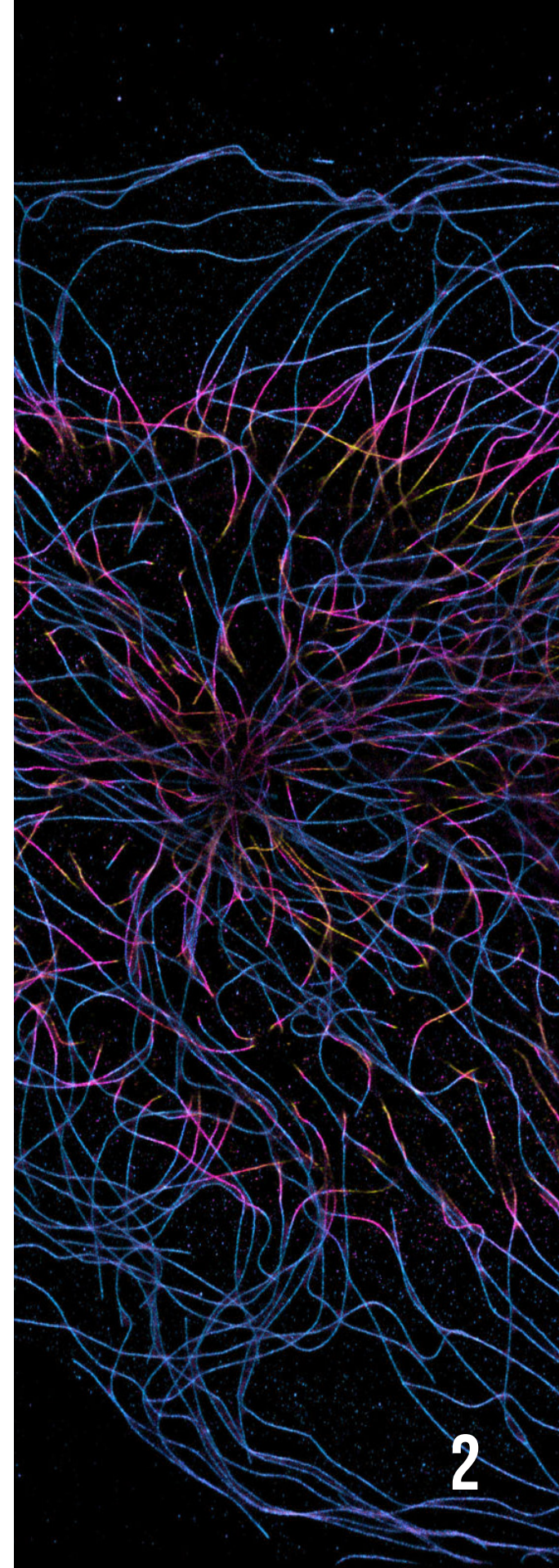
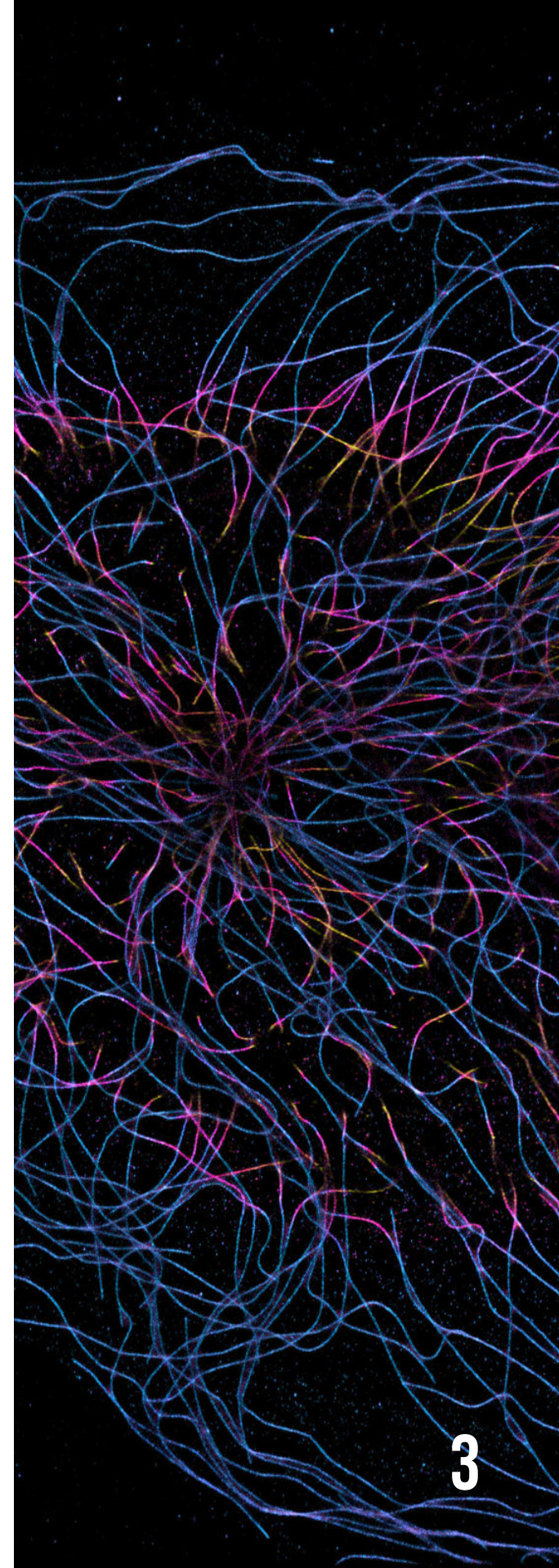


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SCHEDULE

SEPTEMBER 29TH @IMBIBE

108 Henderson Street #3509
Chapel Hill, NC 27514
(Pre-meeting session)

6:00PM Registration

6:30PM Damaris Lorenzo, PhD
UNC Chapel Hill

7:00PM Mingling

7:30PM Wesley Legant, PhD
UNC Chapel Hill

8:00PM Mingling

Local brews will be provided by Imbibe

SEPTEMBER 30TH @ HAW RIVER BALLROOM

1711 Saxapahaw-Bethlehem Church Rd
Saxapahaw, NC 27340

8:00AM Breakfast/Registration

9:00AM Mechanics and Structure of
Cytoskeletal Complexes 1

10:00AM Poster Session 1

11:00AM Cytoskeleton in
Development and Disease 1

11:40AM Lunch

Lunch will be provided by The Eddy Pub

12:40PM Cytoskeleton in
Development and Disease 2

1:20PM Poster Session 2

2:20PM Mechanics and Structure of
Cytoskeletal Complexes 2

3:10PM Poster Session 3

4:10PM Cytoskeleton Under the
Microscope

5:00PM Happy Hour

Local brews, wine and snacks will
be provided by The Eddy Pub

SEPTEMBER 29TH

PRE-MEETING SESSION

IMBIBE

108 HENDERSON STREET #3509, CHAPEL HILL NC 27510

6:30 PM

β II-Spectrin is Required to Build the Axon and Connect the Brain

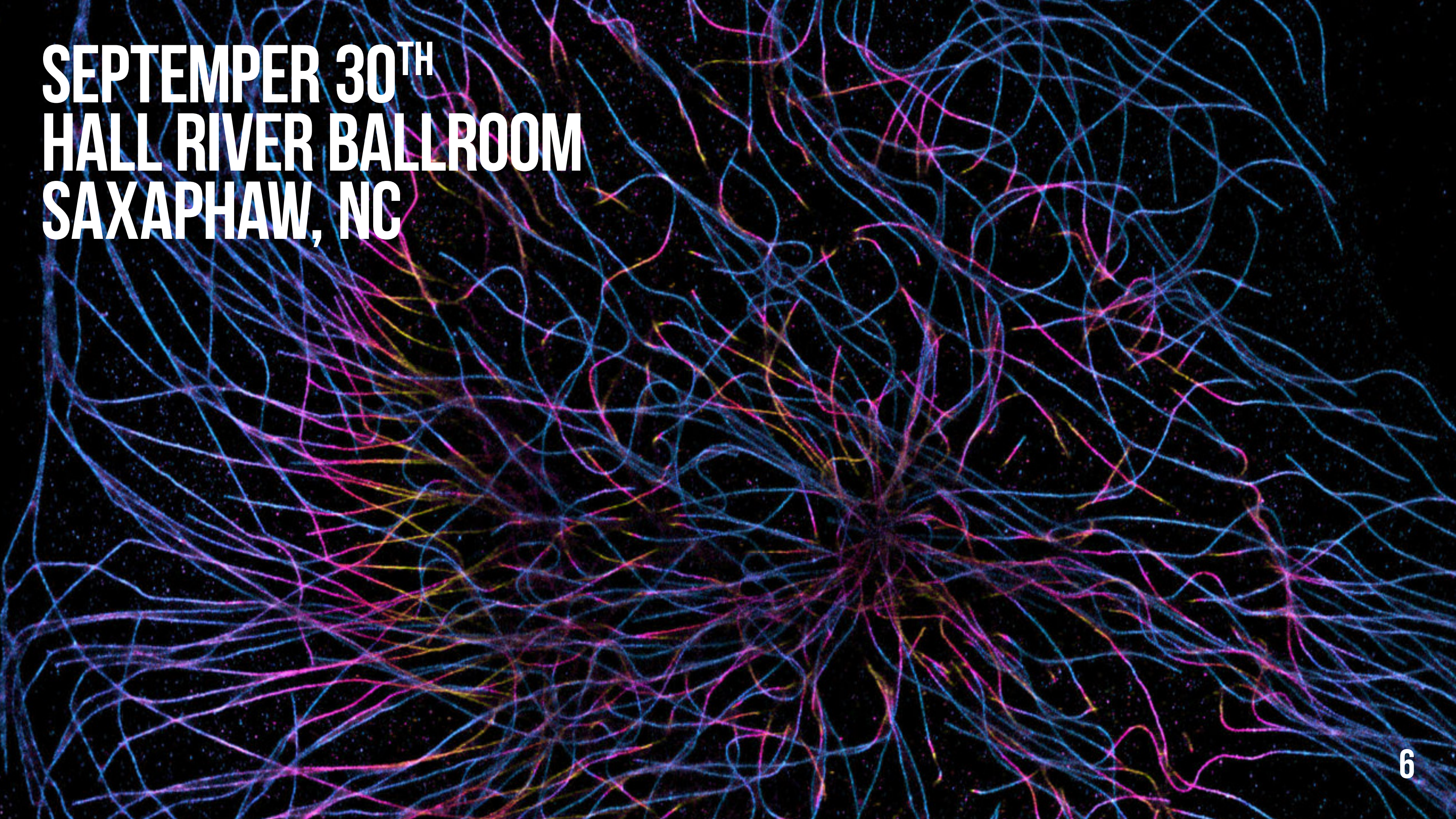
INVITED SPEAKER: DAMARIS LORENZO, PhD. - UNC Chapel Hill

7:30 PM

From Molecules to Organisms: Pushing the Limits of Fluorescence Microscopy

INVITED SPEAKER: WESLEY LEGANT, PhD. - UNC Chapel Hill

**SEPTEMBER 30TH
HALL RIVER BALLROOM
SAXAPHAH, NC**



MECHANICS AND STRUCTURE OF CYTOSKELETAL COMPLEXES 1

8:00 AM **Registration**

9:00 AM **The Architecture and Dynamics of Podosomes in Macrophage Frustrated Phagocytosis**

Shiqiong Hu, PhD - University of North Carolina at Chapel Hill

Identifying Components of the Molecular Clutch that Regulates Apical Constriction

Mark Slabodnick, PhD - University of North Carolina at Chapel Hill

Mitochondria, Miros, and MYO19 make for Meaningful Mentorship

INVITED SPEAKER: Omar Quintero, PhD - University of Richmond

10:00 AM **Poster Session 1**



POSTER SESSION 1

Putting the Mitotic Spindle in its Place

Ehssan Nazockdast, Hai-Yin Wu, Daniel Needleman, Michael Shelley - UNC Chapel Hill

Perturbing Vinculin Mechanical State to Investigate Potential Focal Adhesion Loading Mechanisms

Juilee Malavade, Kathryn Rothenberg, Brenton Hoffman - Duke University

Laser Ablation Uncovers the Mechanical Properties of the Constricting Contractile Ring in Fission Yeast

Mohamed Moshtohry, Mary Williard Elting, Caroline Laplante - North Carolina State University

PPP1R2 Balances Kinase and Phosphatase Activity to Regulate Centrosome Function and Cell Division

Alan-Michael Bresch and Ann O. Sperry - East Carolina University

Actin Chromobody Imaging Reveals Sub-Organellar Actin Dynamics

Cara R. Schiavon, Tong Zhang, Bing Zhao, Leonardo Andrade, Melissa Wu, Tsung-Chang Sung, Yelena Dayn, Jasmine W. Feng, Omar A. Quintero, Robert Grosse, Uri Manor - University of Richmond

Multi-level Regulation of the Intermediate Filament Cytoskeleton by Site-Specific Glycosylation

Brett M. Condon, Duc Huynh, Jimin Hu, Heather J. Tarbet, Po-Han Chen, Lee Dolat, E. Timothy O'Brien III, Jen-Tsan Chi, Raphael H. Valdivia, Michael Boyce - Duke University

The Role of Ndel1 and Nde1 in Regulating Keratin Assembly

Yong-Bae Kim, [Daniel Hlavaty](#), Jeffrey Maycock, and Terry Lechler - Duke University

The Nucleolus is Composed of Two Distinct Types of Phase Separations

[Josh Lawrimore](#), Muznah Khan, Elaine Yeh, and Kerry Bloom - UNC Chapel Hill

The MyMOMA Domain of MYO19 Encodes for Distinct Miro-dependent and Miro-Independent Mechanisms of Interaction with Mitochondrial Membranes

Jennifer L. Bocanegra, Barbara M. Fujita, [Natallie R. Melton](#), J. Matthew Cown, Elizabeth L. Scchinski, Tigist Y. Tamir, M. Ben Major, and Omar A. Quintero - University of Richmond

Knockdown and Fluorescent Tagging of Axonemal Dynein to Understand the Unique Flagellar Undulation in T. Brucei

Valerie Hinsch, Madison Ragland, [Katherine Wentworth](#), Subash Godar, Joshua Alper - Clemson University

Reconstituting Cytoskeletal Assembly from Budding Yeast Extracts Reveals Basic Biophysical Properties of Septin Filament Polymerization

[Benjamin Woods](#), Kevin Cannon, Ian Seim, John Crutchley, and Amy Gladfelter - UNC Chapel Hill

Kif15 Supports the Mechanical Integrity of the Mammalian K-Fiber

[Marcus A. Begley](#), Elizabeth Mae Davis, Mary Willard Elting - North Carolina State University

Roles of Giant Ankyrin-B in Axonal Development and Cortical Connectivity

[Blake Creighton](#), Simone Afriyie, Damaris Lorenzo - UNC Chapel Hill

Mechanotransduction and Alternative Splicing Regulation in Skeletal Muscle Cells

[Emma Hinkle](#), Hannah Wiedner, Micaela Jackson, Eddie Torres, Timothy O'Brien III, Keith Burridge, Jimena Giudice - UNC Chapel Hill

A Mechanistic Model of PLC/PKC Signaling implicates Phosphatidic Acid as a Key Amplifier of Chemotactic Gradient Sensing

[Jamie L. Nosbisch](#), Krithika Mohan, Timothy C. Elston, James E. Bear, and Jason M. Haugh - North Carolina State University

Integrated 3D Tomography and Computational Modeling to Study Forces in Metaphase Spindles

[Stefanie Redemann](#), Ehssan Nazockdast - University of Virginia

Analysis of Dicentric Chromosome Breakage in Yeast

Kerry Bloom, Diana Cook, [Sarah Long](#), Patrick Cusick, Colleen Lawrimore - UNC Chapel Hill

Focal Adhesion Characterization During Neuronal Differentiation of hPSC-Derived Neurons

[Amanda Petritsch](#), Brenna Kirk, Karen Litwa - East Carolina University

The Properties of Membraneless Organelles are Tuned to Environmental Conditions

[Ben Stormo](#), Christine Roden, Fred Dietrich, Amy Gladfelter - UNC Chapel Hill

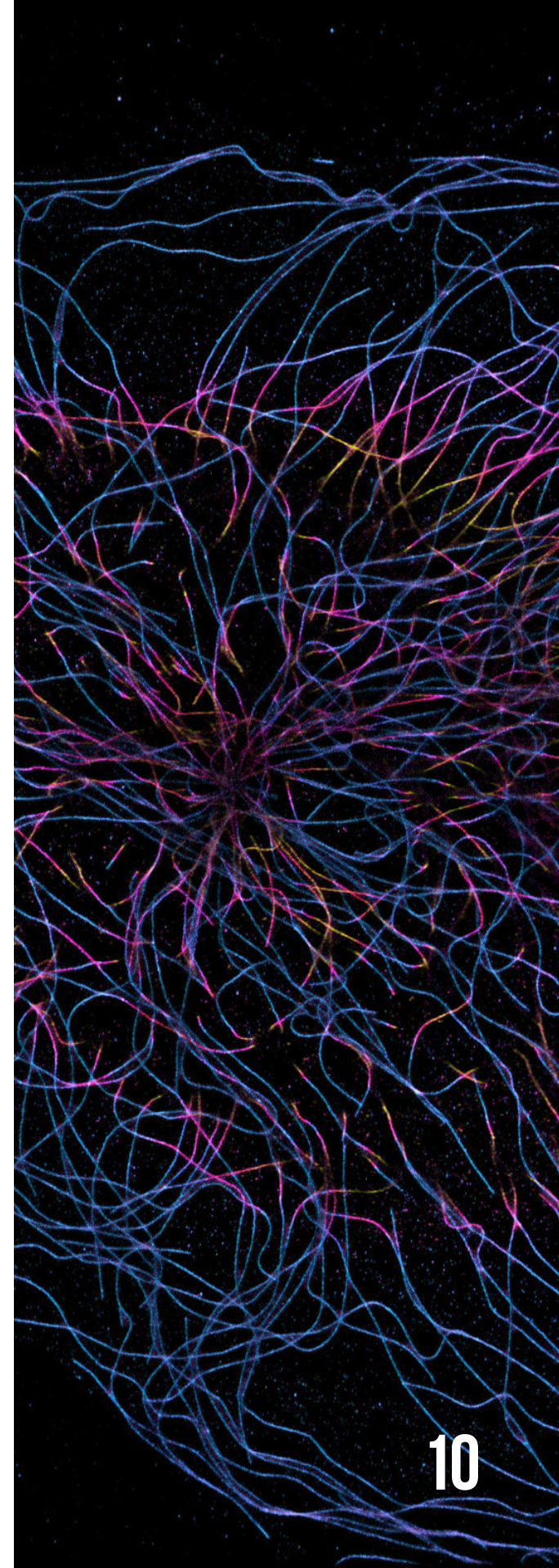
11:00 AM

Investigating the Regulatory Role of the Extracellular Matrix in Cortical Brain Development

Emily Wilson - East Carolina University

Pericentrin Reduction from Basal Bodies is Required for Sperm Development

Ramya Varadarajan, PhD - NIH-NHLBI



CYTOSKELETON IN DEVELOPMENT AND DISEASE 2

11:40 AM

Lunch

12:40 PM

Building a Planar Signaling System that Directs Actin Protrusion and Collective Migration of Epithelial Cells

Audrey Williams - University of Chicago

Expanding the Roles of Desmosomes in Tissue Physiology

INVITED SPEAKER: Terry Lechler, PhD - Duke University

1:20 PM

Poster Session 2



POSTER SESSION 2

Uncovering the Spindle-Orienting Function of AGS3 in Epidermal Morphogenesis

Carlos Patiño Descovich, Kendall Lough, Jina Yom, Danielle Spitzer, Scott Williams - UNC Chapel Hill

Microfluidics for Flow-Driven Angiogenesis

Stephanie Huang, W.J. Polacheck - UNC Chapel Hill

Dissecting the Formation and the Regulation of Actomyosin

Structure at the Apical Adherens Junctions

Hui-Chia Yu-Kemp, Madeline Lane Lillich, Mark Peifer - UNC Chapel Hill

Dye-Based Biosensors for Single Molecule Imaging of Protein Activity in Living Cells

Nicholas Pinkin, Bei Liu, Klaus Hahn - UNC Chapel Hill

Centriole Motility and Subcellular Position Requires Pericentrin-Like-Protein and Kinesin-1

M.R. Hannaford, Z.T. Swider, B.J. Galleta, C.J. Fagerstrom, N.M. Rusan- NIH/NHLBI

Actin Damage as the Cause of Cell Death in Low-Frequency Magnetic Field Exposure for Nanoparticle-Mediated Cancer Therapy

Lida Ghazanfari, Youngee Seo, Marina Sokolsky, Alexander Kabanov - UNC Chapel Hill

Microtubule Acetylation is Required for Mechanosensation in Drosophila

Steve Rogers and Jay Parrish - UNC Chapel Hill

Courtship is a Two-Way Conversation: Yeast Mating as a Model of Cell-Cell Communication

[Manuella R. Clark-Cotton](#), Nicholas Henderson, Daniel Lew - Duke University

A Molecular Tension Sensor for N-Cadherin Reveals Distinct Forms of Mechanosensitive Adhesion Assembly in Adherens and Synaptic Junctions

[Ishaan Puranam](#), Aarti Urs, Brenna Kirk, Karen A. Newell-Litwa, Brenton Hoffman - Duke University

CB1R regulates Excitatory Synapse Area in a Cortical Spheroid Model of Fetal Neurodevelopment

[Alexis Papariello](#), Ken Soderstrom, David Taylor, Karen Litwa - East Carolina University

Regulation of Kinetochore Assembly by the Chromosomal Passenger Complex

Mary Kate Bonner, Julian Haase, [Ricky Chen](#), Alexander E. Kelly - NIH/NCI

The Chlamydia trachomatis Effector TepP Reprograms the Function of the F-Actin Regulator EPS8 to Mediate the Transient Disassembly of Epithelial Cell-Cell Junctions and Regulate Innate Immune Responses

[Lee Dolat](#), Victoria Carpenter, Raphael Valdivia - Duke University

Sperm Head-Tail Linkage Requires Restriction of Pericentriolar Material to the Proximal Centriole End

[Brian J. Galletta](#), Jacob Ortega, Samantha Smith, Carey Fagerstrom, Justin Fear, Sharvani Mahadevaraju, Brian Oliver, Nasser Rusan - NIH/NHLBI

Probing Cell Mechanics in Migrating Cells Using Traction Force Microscopy

[Max Hockenberry](#), Richard Superfine, James Bear, Mike Falvo, Sreeja Asokan - UNC Chapel Hill

A Genetic Screen for Mechanisms that Counter Extra Centrosomes

[Erin Jezuit](#), Andrew Padilla, Don Fox - Duke University

Extreme Low-Light SIM and SRRF SuperResolution Imaging via Deep Learning

[Luhong Jin](#), Bei Liu, Tim Elston, Klaus Hahn - UNC Chapel Hill

Cytoskeleton Remodeling Regulates Human Fetal Synaptogenesis

Taylor Rudisill, Brenna Kirk, Kinsley Tate, Emily Wilson, Paige Kemper, Sydney Goertzen, [Karen Newell-Litwa](#) - East Carolina University

VASP Ubiquitination Regulates Actin Dynamics and Neuronal Morphogenesis

[Laura McCormick](#), Graham Diering, Nicholas Brown, Stephanie Gupton - UNC Chapel Hill

A Versatile Platform for Measuring Cellular Forces in Complex 3D Environments

[Regan Moore](#), Kashav Patel, Wesley Legant - UNC Chapel Hill

MECHANICS AND STRUCTURE OF CYTOSKELETAL COMPLEXES 2

2:20 PM

Vinculin-Mediated Mechanocoupling During Epithelial Sheet Expansion

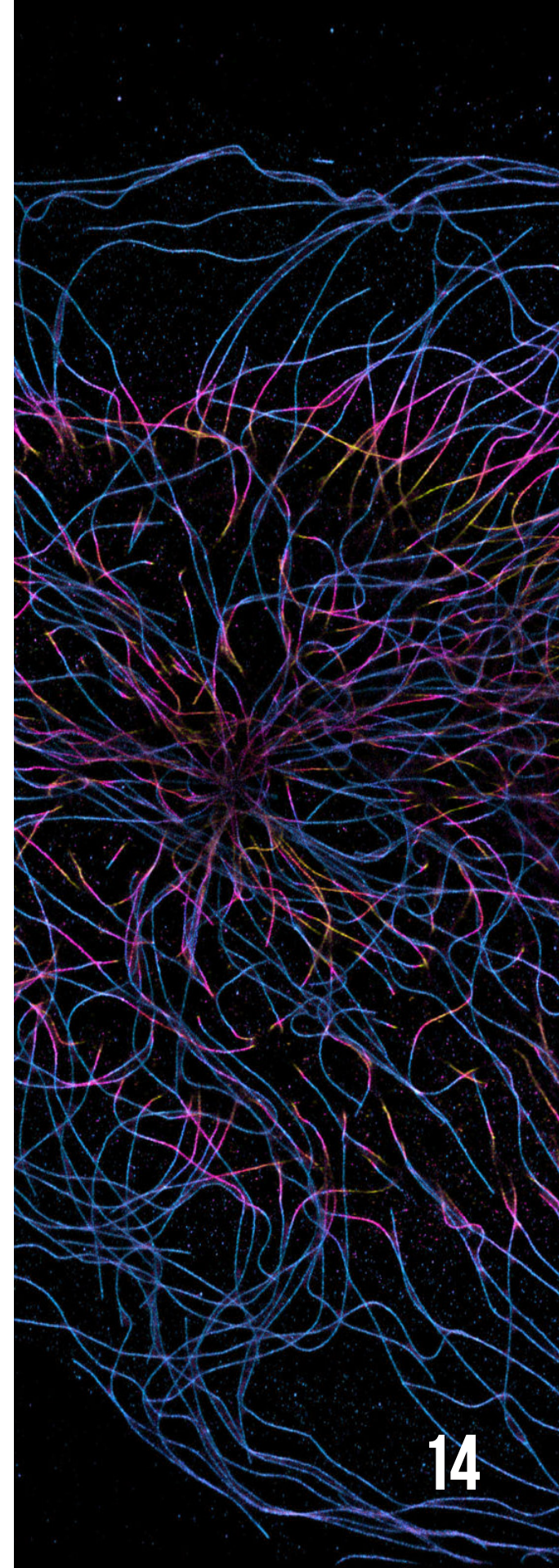
Evan Gates - Duke University

Physical Mechanisms Underlying the Emergence of Order at the Subcellular and Cellular Scales

KEYNOTE SPEAKER: Alexander Dunn, PhD - Stanford University

3:00 PM

Poster Session 3





POSTER SESSION 3

Combined Volumetric Light Sheet and Atomic Force Microscope System for Mechanobiology

E. Nelsen, CM Hobson, ME Kern, J Hsiao, ET O'Brien III, T Watanabe, BM Condon, M Boyce, KM Hahn, MR Falvo, R Superfine - UNC Chapel Hill

Identification of a Critical Phosphorylation Site that Regulates the Assembly of Glial Fibrillary Acidic Protein (GFAP)

Samed Delic, Rachel Battaglia, Roy Quinlan, Natasha Snider - UNC Chapel Hill

Connectivity Analysis of GEF/GTPase Networks in Living Cells

Daniel J. Marston, Marco Vilela, Jinqi Ren, George Glekas, Mihai Azoitei, Gaudenz Danuser, John Sondek, Klaus Hahn - UNC Chapel Hill

Developing Parameters for EML4-ALK/Microtubule Colocalization Imaging via STORM

Anna Leigh White, Iosefina Sampson, Rugh Hughes, Richard Bayliss - University of Richmond and University of Leeds

The DNA Repair Protein Nopo has a Mitotic Function that Suppresses Neuronal Stress Response to Prevent Microcephaly

RS O'Neill, CJ Fagerstrom, NM Rusan - NIH/NHLBI

Optogenetic Control of Cofilin and aTAT in Living Cells Using Z-Lock

Orrin Stone, Neha Pankow, Bei Liu, Ved Sharma, Robert Eddy, Hui Wang, Andrew Puts, Frank Teets, Brian Kuhlman, John Condeelis, Klaus Hahn - UNC Chapel Hill

Modeling Mitochondrial Dynamics During Mitosis

Barbara M. Fujita, Saurabh Mogre, Greyson Lewis, Omar A. Quintero - University of Richmond

Acute Rho1 Activation Reveals that Ventral Epithelial Cells of the Drosophila Embryo are Specifically Predisposed for Coordinated Anisotropic Constriction During Gastrulation

[Ashley Rich](#), Richard Fehon, Michael Glotzer - University of Chicago

Role of Metavinculin in Actin Reorganization and Force Transmission

[Mohammad Ashhar I Khan](#), Theresa Lee, Muzaddid Sarkar, Timothy O'Brien, Keith Burridge, Sharon Campbell - UNC Chapel Hill

Canoe/Afadin and Polychaetoid/ZO-1 Act in Parallel to Maintain Epithelial Integrity When Challenged by Adherens Junction Remodeling During Embryogenesis

[Kia Perez-Vale](#), Lathiena Manning, Kristina Schaefer, Mycah Sewell, Melissa Greene, Mark Peifer - UNC Chapel Hill

Automated Tracking of S. pombe Spindle Elongation Dynamics

[Ana Sofia Uzsoy](#), Mary Williard Elting - North Carolina State University

Intracardiac Administration of EphrinA1-Fc Preserves Mitochondrial Bioenergetics During Acute Ischemia Reperfusion Injury

[Jitka Virag](#), Maria Torres, Kelsey McLaughlin, Randall Renegar, Smrithi Valsaraj, Shylah Whitehurst, Omar Sharaf, Uma Sharma, Julie Horton, Brinda Sarathy, Justin Parks, Jeffrey Brault, Kelsey Fisher-Wellman, P. Darre - East Carolina University

Microtubule Assembly from Single Flared Protofilaments - Forget the Cozy Corner?

Lauren Corbin and [Harold P. Erickson](#) - Duke University

Spindle Orientation Coordinates Cell Fate Decisions During Hair Follicle Morphogenesis

[Rebecca Moreci](#) and Terry Lechler - Duke University

Developmental Dynamics of Cardiac Pacemaker Cells

[Kandace Thomas](#), Trevor Henley, Sue Bai, Joan Taylor, M. Joseph Costello, Michael Bressan - UNC Chapel Hill

A Novel System for Compartmentalized Study of Neuronal Intermediate Filament Proteostasis in Axons

[Maryam Faridounnia](#), Rachel Battaglia, Adriana Beltran, Natasha Snider - UNC Chapel Hill

PRG3 Increases Cell Adhesion Through Modulation of RhoA and Rac1 Activity

[S. Tilve](#), C. Agbaegbu Iweka, C. Mencio, Y. Katagiri, H.M. Gellar - NIH/NHLBI

The Anillin Homolog Mid1p is Dispensible for Cytokinetic Node Assembly in Fission Yeast

[Kimberly Bellingham-Johnstun](#), E. Casey Anders, Christina Bruinsma, John Ravi, Caroline Laplante - North Carolina State University

TRIM9 and TRIM67: Master Regulators of Developing and Adult-Born Neurons

[Shalini Menon](#), Dennis Goldfarb, Chris Hardie, Emma Johnson, Ben Major, Stephanie Gupton - UNC Chapel Hill

CYTOSKELETON UNDER THE MICROSCOPE

4:10 PM

Light DISC: Quantitative Light Sheet Fluorescence Microscopy with Minimal Shadowing

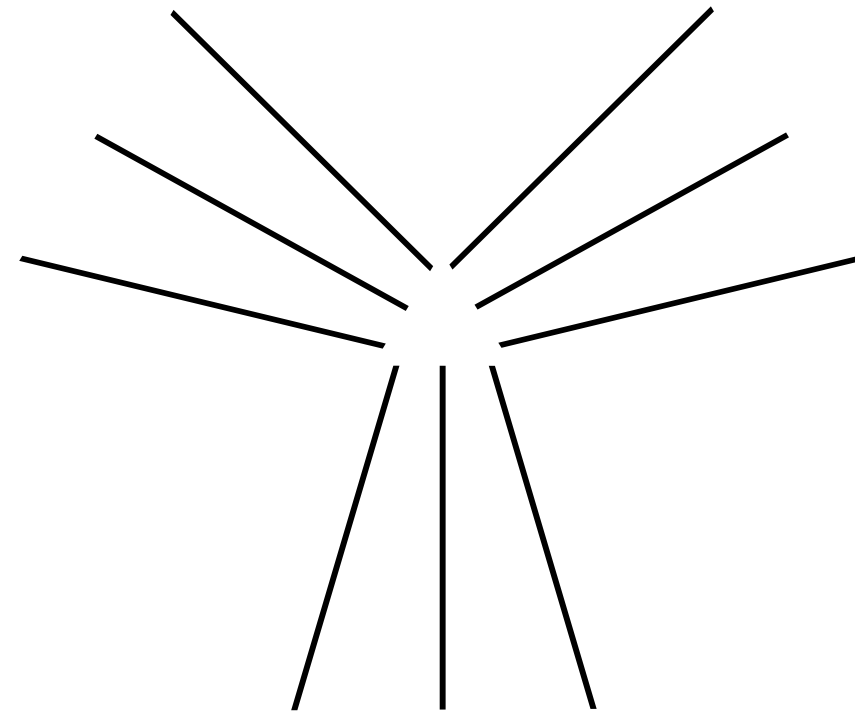
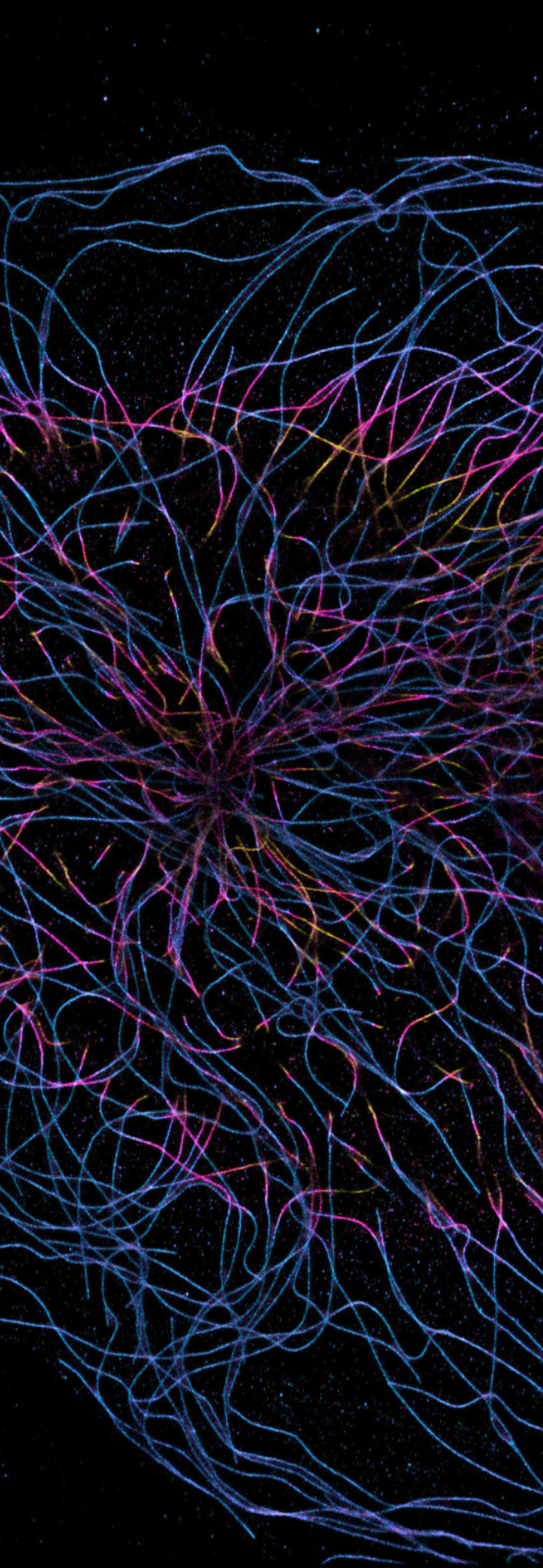
Tanner Fadero - UNC Chapel Hill

A Side-View on Nuclear Mechanics: Combined Atomic Force Microscopy and Light Sheet Microscopy Unravel Chromatin's Role in Regulating Nuclear Morphology

Chad Hobson - UNC Chapel Hill

5:00 PM

HAPPY HOUR!



THE TRIANGLE CYTOSKELETON MEETING

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