

Biographical Sketch: David Tees, Associate Professor, Ohio University

a. Professional preparation

McGill University	Physics	B.Sc. 1986
McGill University	Physics	M.Sc. 1989
McGill University	Physics	Ph.D. 1996
Cornell University	Chemical Engineering	Postdoc 1995-1996
University of Pennsylvania	Chemical Engineering	Postdoc 1996-2000

b. Appointments

Ohio University, Athens, OH, U.S.A., Department of Physics and Astronomy,
Associate Professor September 2007 – present

Ohio University, Athens, OH, U.S.A., Department of Physics and Astronomy,
Assistant Professor September 2001 – August 2007

University of Pennsylvania, Philadelphia, PA, U.S.A., Department of Chemical Engineering,
Research Associate, Supervisor: Daniel A. Hammer October 2000 – August 2001

c.(i) Closely related publications

1. Sundd, P., X. Zou, D.J. Goetz, and D.F.J. Tees. Leukocyte adhesion in capillary-sized, P-selectin-coated micropipettes. *Microcirculation*, 15(2):109-122, 2008 (Published online Nov. 2007). DOI: 10.1080/10739680701412971

2. Anand Pai, Prithu Sundd, and D.F.J. Tees. In situ microrheological determination of neutrophil stiffening following adhesion in a model capillary. *Annals of Biomedical Engineering*, 36(4):596-603, 2008. DOI: 10.1007/s10439-008-9437-8

3. **Tees, D.F.J.**, Prithu Sundd, and Douglas J. Goetz. A Flow Chamber for Capillary Networks: Leukocyte adhesion in capillary-sized, ligand-coated micropipettes in “Principles of Cellular Engineering: Understanding the Biomolecular Interface”, Michael R. King, ed., Elsevier, New York, 213-231, 2006.

4. **Tees, D.F.J.**, R.E. Waugh, and D.A. Hammer. A microcantilever device to assess the effect of force on the lifetime of selectin-carbohydrate bonds. *Biophysical Journal*, 80:668-682, 2001.

5. Chang, K.-C., **Tees, D.F.J.**, and D.A. Hammer. The state diagram for cell adhesion under flow: leukocyte rolling and firm adhesion. *Proceedings of the National Academy of Sciences U.S.A.*, 97:11262-11267, 2000.

c.(ii) Other publications

1. X. Zou, V.R. Shinde Patil, N.M. Dagia, L.A. Smith, M.J. Wargo, K. A. Interliggi, Christopher M. Lloyd, **D.F.J. Tees**, B. Walcheck, M.B. Lawrence, and D.J. Goetz. PSGL-1 derived from human neutrophils is high-efficiency ligand for endothelial-expressed E-selectin under flow. *American Journal of Physiology—Cell Physiology*. 209:C415-C424, 2005.

2. **Tees, D.F.J.** and D.J. Goetz. Leukocyte adhesion: An exquisite balance of hydrodynamic and molecular forces. *News in Physiological Sciences*. 18:186-190, 2003.

3. **Tees, D.F.J.**, J.T. Woodward, and D.A. Hammer. Reliability theory for receptor-ligand bond dissociation. *Journal of Chemical Physics*, 114:7483-7496, 2001.

4. **Tees, D.F.J.**, and H.L. Goldsmith. Kinetics and locus of failure of receptor-ligand mediated adhesion between latex spheres. I. Protein-carbohydrate bond. *Biophysical Journal*, 71:1102-1114, 1996.

5. **Tees, D.F.J.**, O. Coenen and H.L. Goldsmith. Interaction forces between red cells agglutinated by antibody. IV. Time and force dependence of break-up. *Biophysical Journal*, 65:1318-1334, 1993.

d. Synergistic activities

1. Adaptation of glass microcantilever technology as a single-molecule adhesion force sensor. A microcantilever technique was applied to measure the dissociation time under applied load for adhesion molecules. Micropipette aspiration was used to appose ligand-coated beads and microcantilevers to form small numbers of receptor-ligand bonds. One may then determine the time distribution of bond break-up for different rates of loading.

2. Development and use of micropipettes coated with endothelial cell adhesion molecules as a model for adhesion in capillaries. This “flow chamber for the capillary microcirculation” will be able to resolve basic questions on the mechanisms of cell trapping in capillaries. This work has been supported by a **NSF CAREER award** to Dr. Tees.

3. Development of the course PHYS 461/561 Cell and Molecular Biophysics at Ohio U.

4. Adjunct Faculty member in Chemical & Biomolecular Engineering at Ohio University. Member of the **Biomedical Engineering Society, Biophysical Society, American Chemical Society and American Physical Society.**

5. Review Panelist for the National Science Foundation, American Heart Association; Reviewer for Annals of Biomedical Engineering, Biophysical Journal, Biorheology, Physical Review E, Physical Review Letters, Langmuir, and Mathematical Biosciences.

e.(i) Collaborators

Nilesh M. Dagia – Massachusetts General Hospital, Charlestown, MA, U.S.A.

Douglas J. Goetz – Ohio University, Athens, OH, U.S.A.

Marcia Kieliszewski – Ohio University, Athens, OH, U.S.A.

Michael B. Lawrence – University of Virginia, Charlottesville, VA, U.S.A.

Christopher M. Lloyd - Ohio University, Athens, OH, U.S.A.

Vivek R. Shinde Patil – Massachusetts General Hospital, Charlestown, MA, U.S.A.

Lee A. Smith – University of Pennsylvania, PA, U.S.A.

Bruce Walcheck – University of Minnesota, Minneapolis, MN, U.S.A.

Xiaoyan Zou – Ohio University, Athens, OH, U.S.A.

e.(ii) Graduate and postdoctoral advisors

Graduate Advisors:

Geoffrey L. Austin (M.Sc.) – University of Aukland, Aukland, New Zealand

Harry L. Goldsmith (Ph.D.) – Montreal General Hospital Research Institute, Montreal, Canada

Postdoctoral Advisor:

Daniel A. Hammer – University of Pennsylvania, Philadelphia, PA, U.S.A.

e.(iii) Thesis advisor and postgraduate-scholar sponsor

Six prior graduate students:

Tariq Ali (SUNY Buffalo), Vasile-Iulian Clapa (Wesleyan University), Timur Skeini (Ohio University), Anand Pai (M.S. [thesis]; Duke University), Sulaiman Kareem (unknown), Prithu Sundd (Ph.D.; UCSD)

Two current graduate advisee: Young Eun Choi and Yang Liu (both Physics & Astronomy)