

## Ophelia K. C. Tsui

### Personal Data

Position / Affiliation: Professor / Physics Department, Boston University  
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### Qualifications

- Princeton University, *Princeton, NJ*, M.Sc., Ph.D. in Physics
- University of Hong Kong, Hong Kong, B.Sc. in Physics, first class honor

### Research Interests

My current research interest comprises various topics of polymer physics, including the dynamics of polymer under confinement, dewetting stability of polymer nanometer films, dynamic and wetting property of polymer brush and miscibility of polymer nano-composites. In my studies, I use atomic force microscopy extensively for dynamic and morphological characterization. As a result, my research also frequently touches upon nano-mechanics and nanotribology.

### Selected Professional Services and Membership

- Guest editor, Special Edition of *the Journal of Polymer Science, Part B: Polymer Physics* for the Division of Polymer, 2010 American Physical Society March Meeting.
- Co-organizer of the symposium, *Surface and Interfacial Rheology* in the Society of Rheology 2010 Meeting, Santa Fe, NM.
- Co-organizer of the invited symposium, *Dynamics of Nano-Confined Polymer Films* in the American Physical Society 2010 Annual March Meeting, Portland, OR.
- Co-editor of *Polymer Thin Films*, a volume in the series, *Soft Condensed Matter Physics* organized by David Andelman and Günter Reiter. (Published by World Scientific, New Jersey).
- Member of the American Physical Society
- Member of the Hong Kong Women Professionals and Entrepreneurs Association
- Consultant of Ella Cheong (HK) Ltd.
- Referee for *Nature Materials*, *Physical Review Letters*, *Physical Review E*, *Macromolecules*, *Langmuir*, *Journal of Chemical Physics*, *Nanotechnology*, *Journal de Physique IV*, *Journal of Polymer Science Part B: Polymer Physics*, *Polymer*, *European Physical Journal E*, *Solid State Communications*, and *Journal of Micromechanics and Microengineering*, etc.

### Awards and Honors

- Sir Edward Youde Memorial Fellow
- Swire Scholar
- Global Centers of Excellence Lecturer, Kyushu University, Fukuoka, Japan (2010)
- APS Fellow (Class of 2011)

### Teaching

1. Elementary Physics I&II (Lectures and Labs for premed. students)
3. Experimental Physics (Laboratory for juniors)
2. Microcharacterization (Lectures for graduates)

## 4. Solid State Physics (Lectures for graduates and seniors)

**Refereed Journal Publications**

1. "Equilibration of Polymer Films Cast from Solutions with Different Solvent Qualities", Nancy R. Li, A. Clough, Z. Yang, O. K. C. Tsui, *Macromolecules* (to appear).
2. "Method to Measure the Viscoelastic Properties of Nanometer Entangled Polymer Films", Dongdong Peng, Zhaohui Yang, and O. K. C. Tsui, *Macromolecules*, **44**, 7460-7464 (2011).
3. "Glass Transition Dynamics and Surface Mobility of Entangled Polystyrene Films at Equilibrium" Z. Yang, A. Clough, C. -H. Lam, and O. K. C. Tsui *Macromolecules*, **44**, 8294-8300 (2011).
4. "Glass Transition Temperature of Polymer Films that Slip", Andrew Clough, Dongdong Peng, Zhaohui Yang, and Ophelia K. C. Tsui, *Macromolecules*, **44**, 1649-1653 (2011).
5. "Glass Transition Dynamics and Surface Layer Mobility in Unentangled Polystyrene Films", Z. Yang, Y. Fujii, F. K. Lee, C. -H. Lam, and O. K. C. Tsui, *Science*, **328**, 1676-1679 (2010).
6. "Shear Modulus of a Polymer Brush", Y. Fujii, Z. Yang, and O. K. C. Tsui, *Macromolecules*, **43**, 4310-4313 (2010).
7. "Is the Dynamics of Polymer Films Consistent with Their Tg?", Z. Yang, D. Peng, A. Clough, C. -H. Lam, and O. K. C. Tsui, *Eur. Phys. J. Special Topics*, **189**, 155-164 (2010).
8. "The Anti-Lotus Leaf Effect in Nanohydrodynamic Bump Arrays", K. Morton, O. Tsui, C. -K. Tung, J. C. Sturm, S. Y. Chou, R. Austin, *New J. Phys.*, **12**, 085008-1-085008-15 (2010).
9. "Method to Measure the Viscosity of Nanometer Liquid Films from the Surface Fluctuations" Z. H. Yang, C. -H. Lam, N. Buot, Elaine DiMasi, J. Jordan-Sweet, O. K. C. Tsui, *App. Phys. Lett.*, **94**, 251906 (2009). Selected for the July 6, 2009 issue of Virtual Journal of Nanoscale Science and Technology.
10. "Affinity of Polystyrene Films to Hydrogen-Passivated Silicon and its Relevance to the Films' Tg", Y. Fujii, Z. H. Yang, J. Leach, H. Atarashi, K. Tanaka, O. K. C. Tsui, *Macromolecules*, **42**, 7418-7422 (2009).
11. "Wettability of End-Grafted Polymer Brush by Chemically Identical Polymer Films", X. Zhang, F. K. Lee, O. K. C. Tsui, *Macromolecules*, **41**, 8148-8151 (2008).
12. "Examination of Non-Liquidlike Behaviors in Molten Polymer Films", Z. H. Yang, Y. J. Wang, L. Todorova and O. K. C. Tsui, *Macromolecules*, **41**, 8785-8788 (2008).
13. "Crossing Microfluidic Streamlines to Lyse, Label and Wash Cells", K. J. Morton, K. Louthback, D. W. Inglis, O. K. Tsui, J. C. Sturm, S. Y. Chou, R. H. Austin, *Lab on a Chip*, **8**, 1448-1453 (2008).
14. "Hydrodynamic Matamaterials: Nanofabricated Arrays to Steer, Refract and Focus Streams of Biomaterials", K. J. Morton, K. Louthback, D. Inglis, O. K. Tsui, J. C. Sturm, S. Y. Chou, R. H. Austin, *PNAS*, **105**, 7434-7438 (2008).
15. "Equilibrium Pathway of Spin-coated Polymer Films", O. K. C. Tsui, Y. J. Wang, F. K. Lee, C. -H. Lam, Z. H. Yang, *Macromolecules* **41**, 1465-1468 (2008).
16. "Effect of Pattern Topology on the Self-cleaning Properties of Textured Surfaces", Xueyun Zhang, B. Kong, O. K. C. Tsui, X. Yang, Y. Mi, C. M. Chan, and B. Xu, *J. Chem. Phys.* **127**, 014703 (2007).
17. "Stability of Polymer Films as a 2D System", Y. J. Wang, C. H. Lam, X. Zhang, O. K. C. Tsui, *Eur. Phys. J. Special Topics*, **141**, 181-187 (2007).
18. "Mean-field Description of Spinodal Growth of Surface Waves on Rupturing Films", Y. J. Wang, O. K. C. Tsui, *J. Non-Cryst. Solids*, **352**, 4977-4982 (2006).
19. "Liquid Crystal Pretilt Angle Control Using Nano-textured Surfaces", F. S. Y. Yeung, F. C. Xie, J. Wan, F. K. Lee, O. K. C. Tsui, P. Sheng, H. S. Kwok, *J. Appl. Phys.* **99**, 124506 (2006).

20. "Substrate Patterning for Liquid Crystal Alignment by Optical Interference", Xuemin Lu, Fuk Kay Lee, Ping Sheng, H. S. Kwok, V. Chigrinov, O. K. C. Tsui, *Appl. Phys. Lett.* **88**, 243508 (2006).
21. "Adhesion of free-standing Newton black film onto a solid substrate", J. -J. Benattar, M. Nedyalkov, F. K. Lee, O. K. C. Tsui, *Angew Chem.* **45**, 1-5 (2006).
22. "Unconventional Spinodal Surface Fluctuations on Polymer Films", Y. J. Wang, O. K. C. Tsui, *Langmuir* **22**, 1959-1963 (2006).
23. "Variable Liquid Crystal Pretilt Angles by Nano-structured Surfaces", F. S. Y. Yeung, J. Y. Ho, Y. W. Li, F. C. Xie, O. K. C. Tsui, P. Sheng, H. S. Kwok, *Appl. Phys. Lett.* **88**, 051910-1-3 (2006).
24. "Effect of Dispersion Forces in the Instability of Polymer Films", Heping Zhao, Ophelia K. C. Tsui, and Zheng-You Liu, *Chinese Phys.* **15**, 172-176 (2006).
25. "Polarisation-independent liquid crystal phase grating on azo-dye film through intensity holography", Xuemin Lu, Qinghua Lu, Fuk Kay Lee, Ophelia Tsui, *Appl. Phys Lett.* **89**, 203507 (2006).
26. "Liquid Crystal Pretilt Control by Inhomogeneous Surfaces", Jones T. K. Wan, Ophelia K. C. Tsui, Hoi-Sing Kwok, Ping Sheng, *Phys. Rev. E* **72**, 021711-1-021711-4 (2005).
27. "Microscopic Surface Patterning by Rubbing Induced Dewetting", X. Zhang, F. C. Xie, O. K. C. Tsui, *Polymer* **46**, 8416-8421 (2005).
28. "Dewetting induced by complete versus non-retarded dispersion forces", Heping Zhao, Yong Jian Wang and Ophelia K. C. Tsui., *Langmuir* **21**, 5817-5824 (2005).
29. "Dispersion forces effects in the instability of polymer films", Heping Zhao, Ophelia K. C. Tsui, Zhengyou Liu, *Solid State Comm.* **134**, 455-459 (2005).
30. "Continuous liquid crystal pretilt control through textured substrates", Fuk Kay Lee, Baoshe Zhang, Ping Sheng, Hoi Sing Kwok, Ophelia K. C. Tsui., *Appl. Phys. Lett.* **85**(23), 5556-8 (2004).
31. "Erratum: 'Continuous liquid crystal pretilt control through textured substrates'[*Appl. Phys. Lett.* 85, 5556 (2004)]", Fuk Kay Lee, Baoshe Zhang, Ping Sheng, Hoi Sing Kwok, Ophelia K. C. Tsui., *Appl. Phys. Lett.* **86**, 149903 (2005).
32. "Extraordinary Hall Effect in  $(\text{Ni}_{80}\text{Fe}_{20})_x(\text{SiO}_2)_{1-x}$  Thin Films", Hui Liu, Fuk Kay Lee, Rong Kun Zheng, X. X. Zhang, Ophelia K. C. Tsui, *Phys. Rev. B.* **70**, 224431 (2004).
33. "First-Order Liquid Crystal Orientation Transition on Inhomogeneous Substrates", Ophelia K. C. Tsui, Fuk Kay Lee, Baoshe Zhang, Ping Sheng, *Phys. Rev. E* **69**(2), 021704-1-021704-7 (2004).
34. "Some Views about the Controversial Dewetting Morphology of Polystyrene Films", Ophelia K. C. Tsui, Y. J. Wang, Heping Zhao, Binyang Du, *Eur. Phys. J. E: Focus Point on Unstable Thin Films* **12**, 417-425 (2003). (invited article)
35. "Some Views about the Controversial Dewetting Morphology of Polystyrene Films - Discussion", Ophelia K. C. Tsui, U. Steiner, A. Sharma, *Eur. Phys. J. E: Focus Point on Unstable Thin Films* **12**, 424-425 (2003).
36. "Comment on 'Tentative Interpretation of the Dewetting Morphologies Presented by Tsui et al.' by Thiele", Ophelia K. C. Tsui *Eur. Phys. J. E: Focus Point on Unstable Thin Films* **12**, 429-430 (2003).
37. "Liquid Crystal Orientation Transition on Microtextured Substrates", Baoshe Zhang, Fuk Kay Lee, Ophelia K.C. Tsui, Ping Sheng, *Phys. Rev. Lett.*, **91**(21), 215501-1-215501-4 (2003).
38. "Study on the Origin of Inverted Phase in Drying Solution-Cast Block Copolymer Films", Haiying Huang, Fajun Zhang, Zhijun Hu, Binyang Du, Tianbai He, Fuk Kay Lee, Yongjian Wang, Ophelia K. C. Tsui, *Macromolecules*, **36**(11), 4084-4092 (2003).

39. "Effect of C60 Molecular Rotation on Nanotribology", Qi Liang, O.K.C. Tsui, Yabo Xu, Hongnian Li, Xudong Xiao, *Phys. Rev. Lett.*, **90**(14), 146102-1 (2003).
40. "Fabrication of Mesoscopic Devices Using Atomic Force Microscopic Electric Field Induced Oxidation", F. K. Lee, G. H. Wen, X. X. Zhang, O.K.C. Tsui, *J. Vac. Sci. Tech. B*, **21**(1), 162-167 (2003). (This paper has been selected by the *Virtual Journal of Nanoscale Science & Technology* Vol. 7(3), 2003.)
41. "Rupturing of Polymer Films with Rubbing Induced Surface Defects", B. Du, F.C. Xie, Y.J. Wang, O.K.C. Tsui, *Chin. J. Polym. Sci.*, **21**(2), 123-127 (2003).
42. "Nanometer Scale Mechanical Study on Well Defined Nanostructured Chain Aggregation of Polyethylene", Binyang Du, Jieping Liu, Jian Zhang, Decai Yang, Tianbai He and Ophelia K. C. Tsui, *Macromol. Symp.* **195**, 141-146 (2003).
43. "Dewetting of Polymer Films with Built-in Topographical Defects", B. Du, F. Xie, Y. Wang, Z. Yang, O.K.C. Tsui, *Langmuir*, **18**(22), 8510-8517 (2002).
44. "Dynamic Study of Polymer Films by Friction Force Microscopy With Continuously Varying Load", Xiaoping Wang, O.K.C. Tsui, Xudong Xiao, *Langmuir*, **18**(18), 7066-7072 (2002).
45. "Solventless Polymerization at the Glass/Solid Interface to Form Polymeric Thin Films", Degang Fu, Lu-Tao Weng, Binyang Du, Ophelia K.C. Tsui, Bing Xu, *Adv. Mater.*, **14**(5), 339-343 (2002).
46. "Effect of Low Surface Energy Chain Ends on the Glass Transition Temperature of Polymer Thin Films", Fengchao Xie, H. F. Zhang, Fuk Kay Lee, Binyang Du, Ophelia K. C. Tsui, Y. Yokoe, K. Tanaka, A. Takahara, T. Kajiyama, Tianbai He, *Macromolecules*, **35**(5), 1491-1492 (2002).
47. "Effect of Chain Ends and Chain Entanglement on Glass Transition Temperature of Polymer Thin Films", O.K.C. Tsui, H. F. Zhang, *Macromolecules*, **34**(26) 9139-9142 (2001).
48. "Rubbing Induced Molecular Alignment and Its Relaxation in Polystyrene Thin Films", O.C. Tsang, Fengchao Xie, O.K.C. Tsui, Z. Yang, Jianmin Zhang, Deyan Shen, Xiaozhen Yang *J. Polym. Sci: Polym. Phys.*, **39**(22), 2906-2914 (2001).
49. "Effect of Interfacial Interactions on the Glass Transition of Polymer Thin Films", O.K.C. Tsui, T.P. Russell, C.J. Hawker, *Macromolecules*, **34**(16), 5535-5539 (2001).
50. "Surface Viscoelasticity Studies of Ultrathin Polymer Films Using Atomic Force Microscopic Adhesion Measurements", X. P. Wang, Xudong Xiao, O.K.C. Tsui, *Macromolecules*, **34**(12), 4180-4185 (2001).
51. "Study of Elastic Modulus and Yield Strength of Polymer Thin Films Using Atomic Force Microscopy", Binyang Du, Ophelia K.C. Tsui, Qingling Zhang, and Tianbai He, *Langmuir*, **17**, 3286-3291 (2001).
52. "Temporal Evolution of Relaxation in Rubbed Polystyrene Thin Films", O. C. Tsang, O.K.C. Tsui, Z. Yang, *Phys. Rev. E*, **63**, 061603 (2001).
53. "Nanostructure and Mechanical Measurement of Highly Oriented Lamellae of Melt-drawn HDPE by Scanning Probe Microscopy", Binyang Du, Jian Zhang, Qingling Zhang, Decai Yang, Tianbai He, Ophelia K. C. Tsui, *Macromolecules* **33**, 7521-7528 (2000).
54. "Studying Surface Glass-to-Rubber Transition Using Atomic Force Microscopic Adhesion Measurements", O.K.C. Tsui, X. P. Wang, Jacob Y. L. Ho, T. K. Ng, Xudong Xiao, *Macromolecules*, **33**, 4198 (2000).
55. "Observation of Inverted Phases in Poly(styrene-*b*-butadiene-*b*-styrene) Triblock Copolymer by Solvent-Induced Order-Disorder Phase Transition", Qingling Zhang, O.K.C. Tsui, Binyang Du, Fajun Zhang, Tao Tang, Tianbai He, *Macromolecules*, **33**, 9561-9567 (2000).
56. "Phase Coherence and Microphase Separation Transitions in Diblock Copolymer Thin Films", P. Mansky, O.K.C. Tsui, T. P. Russell, Y. Gallot, *Macromolecules*, **32**, pp. 4832-4837 (1999).

57. S. P. Bayrakci, O.K.C. Tsui, N. P. Ong, K. Kishio, S. Watauchi, "The Josephson Plasma Resonance in  $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$  as a Probe of Vortex Correlation", *Europhys. Lett.*, **46**, pp. 68-74 (1999).
58. "Dynamics of Concentrated Colloidal Suspensions Probed by X-ray Intensity Fluctuation Spectroscopy", O.K.C. Tsui, and S. G. J. Mochrie, *Phys. Rev.* **E57**, pp.2030-2034 (1998).
59. "Statistical Analysis of X-ray Speckle at the NSLS", Ophelia K.C. Tsui, S. G. J. Mochrie, and L. E. Berman, *J. Synch. Radiation* **5**, pp.30-36 (1998).
60. "Josephson Plasma Resonance and Anomalous Hysteresis in the Vortex Lock-in State in  $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$ ", O.K.C. Tsui, S. P. Bayrakci, N. P. Ong, K. Kishio, S. Watauchi, *Physica C*, **293**, Iss. 1-4, pp 259-263 (1997).
61. "The Josephson Plasma Resonance as a 'Scattering' Probe of Vortex Correlation in the Liquid State", N. P. Ong, S. P. Bayrakci, O.K.C. Tsui, K. Kishio, S. Watauchi, *Physical C* **293**, pp. 20-24 (1997).
62. "Anomalous Hysteresis in Josephson Plasma Resonance of  $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$  for Field Close to Alignment with the *ab*-plane", O.K.C. Tsui, S. P. Bayrakci, N. P. Ong, K. Kishio, S. Watauchi, *Phys. Rev.* **B56**, pp. R2948-R2951 (1997).
63. "Linewidth of *c*-axis Plasma Resonance in Josephson-coupled Superconductors", L. N. Bulaevskii, D. Dominguez, M. P. Maley, A. R. Bishop, O.K.C. Tsui, N. P. Ong, *Phys. Rev.* **B54**, pp. 7521-7535 (1996).
64. "The Josephson Plasma Mode in  $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$  and Quasi-particle Mean-Free-Path in  $\text{YBa}_2\text{Cu}_3\text{O}_7$ ", O.K.C. Tsui, K. Krishana, J. M. Harris, N. P. Ong, *Physica C*, **263**, pp. 381-388 (1996).
65. "Experiments on the Josephson Plasma Mode in  $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$  and the Thermal Hall Conductivity in  $\text{YBa}_2\text{Cu}_3\text{O}_7$ ", N. P. Ong, O.K.C. Tsui, K. Krishana, J. M. Harris and J. B. Peterson, *Chin. J. of Phys.*, **34**, pp. 432-446 (1996).
66. "Excitation of Josephson Plasma Resonance in  $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$  in an oblique field", Ophelia K.C. Tsui, N. P. Ong, J. B. Peterson, *Phys. Rev. Lett.* **76**, pp.819-822 (1996).
67. "Sharp Magnetoabsorption Resonances in the Vortex State of  $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$ ", Ophelia K.C. Tsui, N. P. Ong, Y. Matsuda, Y. F. Yan and J. B. Peterson, *Phys. Rev. Lett.* **73**, pp.724-727 (1994).
68. "Hall Angle Evidence for the Superclean Regime in 60K  $\text{YBa}_2\text{Cu}_3\text{O}_{6+y}$ ", J. M. Harris, Y. F. Yan, O.K.C. Tsui, Y. Matsuda and N. P. Ong, *Phys. Rev. Lett.* **73**, pp.1711-1714 (1994).
69. "Detection of Superconducting Transitions of Multi-Phase  $(\text{Bi,Pb})_2\text{Sr}_2\text{CaCu}_2\text{O}_8$  Ceramics by Photothermal Detection Technique", K.C. Tsui, P. C. W. Fung, H. L. Tam, G. O. Walker, *J. Phys. Chem. Solids*, **52**, pp. 979-983 (1991).
70. "Modeling the Dynamics of Viscoelastic Polymer Films by Adiabatic Approximation", D. Peng, O. K. C. Tsui, C. -H. Lam (in preparation).

### Patent

"A Liquid Crystal Alignment Layer and Methods of Making Thereof", H. S. Kwok, Fion S. Y. Yeung, F. Xie, O. K. C. Tsui and P. Sheng, Patent no. US 7968158 (2011).

### Book

*Polymer Thin Films*, eds. O. K. C. Tsui and T. P. Russell (World Scientific, Singapore, 2008, ISBN 978-981-281-881-2). This book is Vol. 1 of the book series, *Soft Condensed Matter* edited by G. Reiter and D. Andelmann.

**Book Chapters**

1. “Anomalous Dynamics of Polymer Films”, O. K. C. Tsui, in *Polymer Thin Films*, eds. O. K. C. Tsui and T. P. Russell (World Scientific, Singapore, 2008), pp. 267-294. This book is Vol. 1 of the book series, *Soft Condensed Matter* edited by G. Reiter and D. Andelmann. ISBN 978-981-281-881-2
2. “Dynamics of Polymers Confined in Thin Films”, O.K.C. Tsui, In *Recent Advances of Polymer Science Overseas*, eds. Tianbai He and Hangjie Hu, Chemical Industry Publishing Co., Beijing, Chapter 16, pp. 246-263 (2001).
3. “Manipulating Copolymers with Confinement and Interfacial Interactions”, O.K.C. Tsui, E. Huang, L. Rockford, T. P. Russell, Chapter 9, in ACS Symposium Series Vo. 736, *Supramolecular Structure in Confined Geometries*, Eds. S. Manne and G. G. Warr, American Chemical Society, Washington DC, pp.140-152 (1999).
4. “Some Thermodynamic Considerations of the Lower Critical Ordering of Diblock Copolymers”, M. Pollard, O. K. C. Tsui, T. P. Russell, A. V. Ruzette, A. M. Mayes, Y. Gallot, Chapter 17, in American Chemical Society Symposium Series Vol. 739, *Scattering from Polymers: Characterization by X-rays, Neutrons, and Light*, Eds. Cebe, Hsiao and Lohse, pp. 261-269 (1999).

**Invited Talks**

1. “Glass Transition and Dynamics of Entangled Polymer Films”, to be presented in the 2012 American Chemical Society National Meeting, Philadelphia, PA (Aug 19 - 23, 2012).
2. “Surface Mobile Layer, Mobility, and Glass Transition Dynamics of Polymer Films”, presented at the 242<sup>nd</sup> American Chemical Society National Meeting, Denver, CO (Aug 28 - Sept. 1, 2011).
3. “Affinity of Polystyrene on Silicon”, to be presented at the *Discussion Meeting: Challenges in and Potential of Polymer Physics*, Schluchsee, Germany (May 4-6, 2011).
4. “Viscosity and Surface Mobility of Unentangled Polystyrene Films”, presented at the *Discussion Meeting: Challenges in and Potential of Polymer Physics*, Schluchsee, Germany (May 4-6, 2011).
5. “Non-equilibrium and Equilibrium Viscoelasticity of Entangled Polystyrene Films”, presented at the *Discussion Meeting: Challenges in and Potential of Polymer Physics*, Schluchsee, Germany (May 4-6, 2011).
6. “Glass Transition of Nanometer Polymer Films”, presented in the Focus Session on “Confinement of polymers in nanoscopic layers: How much do properties change?”, The 75<sup>th</sup> Annual Meeting of the Deutsche Physikalische Gesellschaft Spring Meeting, Dresden, Germany (March 15, 2011).
7. “Glass Transition of Nanometer Polymer Films”, presented in the Department of Chemical and Biological Engineering, Princeton University, Princeton, NJ (February 2, 2011).
8. “Dynamics of Nanometer Polymer Films”, *Symposium on Chemistry and Functional Properties of Soft Interfaces, Pacificchem 2010*, Honolulu, Hawaii (December 15-20, 2010).
9. “Glass Transition Temperature of Polymer Films”, Department of Physics, Williams College, Williamstown, MA (November 5, 2010).
10. “Glass Transition Dynamics of Polymer Nanometer Films”, Department of Physics, Brown University, Providence, RI (November 4, 2010).
11. “The Role Played by the Surface Mobile Layer on the Glass Transition Dynamics of Polymer Films”, *Squishy Physics Seminar*, School of Engineering & Applied Sciences, Harvard University, Cambridge, MA (August 4, 2010).
12. “Is the Dynamics of Polymer Films Consistent with Their Tg?”, Department of Applied Chemistry, Kyushu University, Fukuoka, Japan (March 9, 2010).

13. Four 1.5-hour Global-Center-of-Excellence lectures on “Interfacial Properties and Stability of Polymer Films” were presented in Kyushu University, Fukuoka, Japan (March 9-11, 2010).
14. “Dynamics of Polymer Films as Probed by the Surface Capillary Spectrum”, *the 4<sup>th</sup> International Workshop on Dynamics in Confinement*, Grenoble, France (March 3-5, 2010).
15. “Non-liquidlike Behaviors in Molten Polymer Film”, *the 37<sup>th</sup> Annual Conference of the North America Thermal Analysis Society*, Lubbock, TX (September 20-23, 2009).
16. “Liquid Crystal Alignment Control by Frustrated Boundary”, Kent State Liquid Crystal Institute, Kent State University, Kent, OH (March 11, 2009).
17. “Examination of Non-liquidlike Behaviors in Molten Polymer Films”, a seminar was presented in the Department of Physics, Brandeis University, Waltham, MA (Nov. 27, 2008).
18. “Examination of Non-liquidlike Behaviors in Polymer Ultrathin Films”, *PolyFilm 2008: Confined polymer films*, Sheffield, UK (September 8-12, 2008).
19. “Liquid Crystal Alignment by Optical Interference and Its Application for Making Phase Diffraction Gratings”, *International Workshop on Light-Controlled Liquid Crystalline Complex Adaptive Materials (LC2CAM)*, University of Colorado, Boulder, CO (August 6-10, 2008).
20. “Surface Capillary Waves on Polymer Films”, Ophelia K. C. Tsui, a colloquium was presented in the Department of Physics, Worcester Polytechnic Institute, Worcester, MA (Jan 21, 2008).
21. “Stability of Polymer Films Interpreted as a Phase Separation Problem in Two Dimensions”, Ophelia K. C. Tsui, *the 9<sup>th</sup> Annual Greater Boston Area Statistical Mechanics Meeting*, Brandeis University (Oct. 13, 2007).
22. “Equilibrium Pathway of Spin-Coated Polymer Films”, Department of Physics, Boston University, Boston, MA (Oct. 12, 2007).
23. “Surface Capillary Waves on Polymer Films”, Department of Polymer Science and Engineering, University of Massachusetts in Amherst (March 23, 2007).
24. “Can Rupturing Stability of Polymer Films be Predicted?”, Ophelia K. C. Tsui, an invited talk was presented in the 3<sup>rd</sup> International Workshop on Dynamics in Confinement, Grenoble, France (March 23-26, 2006).
25. “Some Observations from Spindal Surface Fluctuations on Thin Films”, Ophelia K. C. Tsui, a 20 mins. invited talk was presented in the *Day Meeting on Statistical Physics*, Baptist University, HK (Nov. 8, 2005).
26. “Spinodal Surface Fluctuations on Polymer Films”, Ophelia K. C. Tsui, a 30 mins. invited talk was presented at the 5<sup>th</sup> *International Discussion Meeting on Relaxations in Complex Systems*, Lille, France (July 7-13, 2005).
27. “Spinodal Surface Fluctuations on Polymer Films”, Ophelia K. C. Tsui, a 45 mins. invited talk was presented at the Institute of Chemistry, Chinese Academy of Sciences (April 13, 2005).
28. “Two Examples of Atomic Force Microscope’s Applications in Nano Science and Technology”, Department of Mechanical Engineering, University of Hong Kong (Dec. 15, 2004).
29. “Liquid Crystal Alignment by Inhomogeneous Substrate Surface Patterning”, Department of Physics, Chinese University of Hong Kong (October 15, 2004).
30. “Liquid Crystal Alignment by Substrate Nano-Patterning”, Department of Physics, University of Hong Kong (May 21, 2004).
31. “Liquid Crystal Alignment by Inhomogeneous Substrate Surface Patterning”, Department of Physics, Hong Kong University of Science & Technology (April, 2004).
32. “Dewetting Instability of Polymer Thin Films”, *The 3<sup>rd</sup> East Asia Polymer Conference*, Chengdu, China (June 7-14 2004).
33. “Liquid Crystal Alignment by Inhomogeneous Substrate Surface Patterning”, Department of Physics, Baptist University of Hong Kong (March 2, 2004).
34. “Dewetting Instability of Polymer Thin Films”, Princeton Materials Institute, Princeton University, Princeton, USA (Mar 12, 2003).

35. "Effect of the Air and Substrate Interface on the Glass Transition of Polymer Films Supported by Substrates", National Institute of Standards and Technology, Gaithersburg, Washington DC, USA (March 11, 2003).
36. "Effect of the Air and Substrate Interface on the Glass Transition Temperature of Polymer Films Supported by Substrates", O. K. C. Tsui, a 45 min. invited talk was presented at the workshop on *Physics of Thin Film & Surfaces*, Institute of Materials Research and Engineering (IMRE), Singapore (Jan 13, 2003).
37. "An Overview on Recent Dynamical Studies of Polymer Films", O. K. C. Tsui, a 45 min. invited talk was presented at the workshop on *Physics of Thin Film & Surfaces*, Institute of Materials Research and Engineering (IMRE), Singapore (Jan 13, 2003).
38. "Dewetting of Polymer Films with Built-in Topographical Fluctuations", *International Symposium on Polymer Physics PP'2002*, Qingdao, China (July 2-6, 2002).
39. "Dewetting of Polymer Films with Built-in Topographical Fluctuations", O. K. C. Tsui, a 15 min. invited talk was presented in the Symposium on Nano & MEMS Science and Technology, National Tsing Hua University, Taiwan (April 17-18, 2002).
40. "Distinguishing Spinodal and Nucleation Dewetting by Built-in Topographical Fluctuations", O. K. C. Tsui, a 1-hr invited talk was presented in the Department of Macromolecular Science, Fudan University, Shanghai, China (Jan. 18, 2002).
41. "Distinguishing Spinodal and Nucleation Microphase Separation in Dewetting Polymer Films", O. K. C. Tsui, a 1-hr invited talk was presented in the Chemistry Department, Jilin University, Jilin, China (Jan. 15, 2002).
42. "Instabilities of Polymer Films with Topographical Defects", O. K. C. Tsui, a 1-hr invited talk was presented in the physics department, Hong Kong Polytechnic University, Hong Kong (Dec. 6, 2001).
43. "Instability of Polymer Liquid Films with Built-in Topographical Fluctuations", *2001 National Symposium on Polymer*, Zhengzhou, China (October 12-16, 2001).
44. "Effect of Film Thickness and Tip Structure on Dynamical Studies of Polymer Ultrathin Films Using Atomic Force Microscopic Adhesion Measurements", the *American Chemical Society International Meeting: Pacifichem 2000, Symposium on Polymer Thin Film Interfaces*, Honolulu, Hawaii, U.S.A (December 14-19, 2000).
45. "Dynamical Studies of Viscoelastic Ultrathin Films Using Atomic Force Microscopic Adhesion Measurements and the Related Mechanical Problems", O. K. C. Tsui, a 30-minute invited talk was presented in the *PP'2000 Huangshan International Symposium on Polymer Physics*, Huangshan, China (September 13-17, 2000).
46. "Effect of Chain Ends and Entanglement on Segmental Mobility of Polymers Under Confinement", O. K. C. Tsui, H. F. Zhang, and Edmond W. T. Leung, a 30-minute invited talk was presented in *The Third Joint Meeting of Chinese Physicists World-Wide*, Hong Kong, China (July 31-Aug 4, 2000).
47. "Observation of a Novel Inverted Phase through Kinetic Ordering of Solvent Cast Poly(styrene-*b*-butadiene-*b*-styrene) Triblock Copolymers", O. K. C. Tsui, Q. Zhang, H. F. Zhang, and Tianbai He, a 15-minute invited talk was presented in the *NSFC Key Topics - Structure, Scaffold and Functionality of Assemblies of Organizable Molecules with Advanced Structures*, Beijing, China (April 27-28, 2000).
48. "Glass-to-Rubber Transition of Polymer Thin Films and Their Surface Dynamical Properties", O. K. C. Tsui, X. P. Wang, H. F. Zhang, and Xudong Xiao, a 30-minute invited talk was presented in the 1999 *Second Symposium of Young Chinese Scholars on Materials Science and Technology*, Hangzhou, China (October 11, 1999).

49. “Are Polystyrene Thin Films Really Glassy Below 100°C?”, a 30-minute invited talk was presented in the *1999 National Symposium on Polymer*, Jiaotong University of Shanghai (May 12, 1999).
50. “Glass Transition of Polymer Thin Films”, a 45-minute seminar was presented in the Physics Department, University of Massachusetts, Amherst, MA (December 3, 1998).
51. “Dynamics of Concentrated Colloidal Suspensions Probed by X-ray Correlation Spectroscopy”, *The 28th Annual Meeting of the Fine Particle Society*, Dallas, Texas (April 2, 1998).
52. “Plasma Resonance and Anomalous Hysteresis in Vortex Lock-in State of  $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$ ”, *Workshop on Flux, Quantum, and Mesoscopic Effects in Superconducting Materials and Devices*, Santa Fe, NM (August 4-8, 1997).
53. “Statistical Analysis of X-ray Speckles at NSLS X25”, a 45-minute invited talk was presented in *Workshop on Advances in X-ray Photon Correlation Spectroscopy, NSLS 1997 Annual Users’ Meeting*, Brookhaven National Laboratory, Upton, NY (May 19, 1997).
54. “Excitation of Josephson Plasma Resonance in  $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$  in a magnetic field”, *SPIE’s Photonics West ’96 Symposium on Oxide Superconductor Physics and Nano-Engineering II*, San Jose, CA (February 1, 1996).
55. “Sharp Magnetoabsorption Resonances in the Vortex State of  $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$ ”, *The 1995 APS March Meetings*, San Jose, CA (March 24, 1995).