

## **Changdong Yeo, Ph.D.**

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### **CONTACT**

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 Texas Tech University  
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### **EDUCATION**

Ph.D. Mechanical Engineering, University of Illinois at Urbana-Champaign, 2008  
 (Advisor: Andreas A. Polycarpou)  
 M.S. Mechanical Engineering, Yonsei University (Seoul, Korea), 1998  
 B.S. Mechanical Engineering, Yonsei University (Seoul, Korea), 1996

### **PROFESSIONAL EXPERIENCE**

Associate Professor Dept. of Mechanical Engineering, Texas Tech University	<i>September 2015 – Present</i>
Associate Chair of Research and Graduate Affairs Dept. of Mechanical Engineering, Texas Tech University	<i>August 2018 – August 2019</i>
Assistant Professor Dept. of Mechanical Engineering, Texas Tech University	<i>August 2009 – August 2015</i>
Staff R&D Engineer Seagate Technology LLC (Shakopee, MN)	<i>April 2008 – August 2009</i>
Research Assistant Dept. of Mechanical Engineering, University of Illinois at Urbana-Champaign	<i>August 2004 – April 2008</i>
Senior R&D Engineer Samsung Electronics Co. Ltd. (Suwon/Korea and San Jose/CA)	<i>January 1998 – July 2004</i>

### **ADMINISTRATION EXPERIENCE**

Associate Chair, Director of Research and Graduate Affairs: *August 2018 ~ August 2019*  
 : I assisted the department chair to improve the quality and quantity of ME graduate program.

- Renovate the qualify exam process for ME doctoral students: Previous verbal presentation → Written + Oral exams for primary & secondary subjects in ME, based on benchmarks of competitors and major research-oriented US institutes.
- Launch the departmental portal for ME graduate applications: Previous prints and paper-based application review → All graduate applications are reviewed and accessible through this portal site, available for all ME faculties.
- Integrate the ME Graduate handbook: Previous several versions of handbook were combined and integrated into a single version to avoid confusions on ME graduate program.
- A successful MOU with Seoul National University of Science and Technology (SeoulTech) to recruit outstanding students into ME graduate program: One student joined ME graduate program through this MOU in 2019.

## **HONORS AND AWARDS**

### *A. Research Award*

1. Ed and Linda Whitacre Faculty Fellow, Texas Tech University, 2020
2. Whitacre Engineering Research Award, Texas Tech University, 2015
3. US Air Force Summer Faculty Fellowship Award, 2014
4. US Air Force Summer Faculty Fellowship Award, 2012
5. NSF BRIGE Award, 2012

### *B. Accomplishment Award*

6. Outstanding Engineer of the Year 2000, Samsung Electronics Co. Ltd, 2001

### *C. Institutional Travel Award*

7. International Travel Fund (ITF) Award, Texas Tech University, 2016
8. Schaller Fund Graduate College Travel Grant, UIUC, 2007

### *D. Scholarship*

9. Samsung Scholarship Program Award, Samsung Electronics Co. Ltd, 1996-1998

## **RESEARCH INTERESTS**

- Integration of mechanics and electromagnetic properties of advanced materials: First principle calculation, Monte Carlo simulation, analytical modeling, and experiment
- Multi-scale mechanics of thin films: Analytical and computational modeling and simulations
- Atomic interaction among organic chemicals, polymeric molecules, and solid surface.
- Fundamental mechanism of friction, wear, and lubrication

## **GRANTS AND CONTRACTS**

### *A. Awarded*

1. Principal Investigator, “Integrating Electrical Contact Resistance Models into Nonlinear Structural Dynamic Simulations,” Sandia National Laboratory, Project Period 10/01/2021 – 9/30/2022, Project Budget \$85,000 (annually renewed).

2. Principal Investigator, “Electrical Contact Resistance under Dynamic Chattering Condition,” Sandia National Laboratory, Project Period 3/01/2021 – 9/30/2021, Project Budget \$30,000.
  3. Principal Investigator, “Material Degradation and Surface Contamination of HDI in HAMR Technology,” Seagate Technology, Project Period 10/01/2020 – 9/31/2022, Project Budget \$120,000.
  4. Principal Investigator, “Integrated research on material degradation and surface contamination during HAMR operation,” Seagate Technology, Project Period 10/01/2019 – 5/31/2021, Project Budget \$60,000.
  5. Principal Investigator, “Ionic Liquids with Graphene Oxide (GO) as Lubricants at Extreme Temperature,” Office of Research & Innovation, Texas Tech University, Project Period 12/01/2019 – 12/31/2020, Project Budget \$4,000.
  6. Principal Investigator, “Investigating Thermo-Chemical/Mechanical Kinetics of HDI Materials under Air Bearing Shear through MD Simulations,” Seagate Technology, Project Period 10/01/2016 – 9/31/2018, Project Budget \$170,000.
  7. Principal Investigator, “Collaborative: Effect of Microstress and Frictional/Adiabatic Heat on Magnetic Property of Ferromagnetic Thin Film,” National Science Foundation (NSF) – CMMI, Project Period 4/15/2015 – 4/14/2018, Project Budget \$514,812 (PI’s portion: \$296,771).
  8. Principal Investigator, “Organic Contaminants in HDI: Formation, Growth, and Mechanical Collision,” Seagate Technology, Project Period 10/01/2015 – 9/31/2016, Project Budget \$85,000.
  9. Principal Investigator, “Organic Contaminants in HDI: Formation, Growth, and Mechanical Collision,” Seagate Technology, Project Period 10/01/2014 – 9/31/2015, Project Budget \$85,000.
  10. Principal Investigator, “Mechanical Induced Magnetic/Electrical Failures of Head and Media,” Seagate Technology, Project Period 10/01/2013 – 9/31/2015, Project Budget \$85,000.
  11. Principal Investigator, “Microwear Mechanism of Carbon Film under Extremely High-Speed Surface Contact accounting for Phase Transition and Oxidation,” National Science Foundation (NSF) – ECCS, Project Period 9/01/2012 – 8/31/2014, Project Budget \$169,376.
  12. Principal Investigator, “Thermo-magneto-mechanical Contact Performance of Ferromagnetic Thin Films,” Texas Tech University, Project Period, 9/01/2013 – 8/31/2014, Project Budget \$4,500.
  13. Principal Investigator, “Integrated Research on Thermo-Mechanical Contact Performance of Head Slider in HDD,” Seagate Technology, Project Period 9/01/2012 – 8/31/2013, Project Budget \$84,857.
- C. Equipment acquisition prior the last promotion (No. of Acquisition: 2, Total: \$320,000)*
14. Principal Investigator (Equipment), Atomic Force Microscope made by NanoSurf @Mobile S, Samsung Information Systems America (San Jose, CA), Original price ~\$120,000.

15. Principal Investigator (Equipment), VENA VS90 made by VENA systems, Seagate Technology (Bloomington, MN), Original price ~\$200,000.

## **PATENTS**

1. **C.-D. Yeo**, “Single head disk drive having backup system information and method of recording and/or reading system information thereof,” US Patent 7,167,961 (2007).
2. **C.-D. Yeo**, J.Y. Kim, “Method of screening hard disk drive,” US Patent 7,123,428 (2006).
3. J.Y. Kim, **C.-D. Yeo**, S.H. Song, G. Kim, “Methods of optimizing recording current and setting recording density of hard disk drive,” US Patent 7,102,838 (2006).
4. J.Y. Kim, **C.-D. Yeo**, “Methods of measuring TPTP of magnetic head and controlling recording current,” US Patent 6,999,256 (2006).
5. **C.-D. Yeo**, J.Y. Kim, C. Park, “Method and apparatus for measuring magnetic write width of magnetic head using burst pattern,” EP Patent 1,383,114 (2006).
6. **C.-D. Yeo**, J.Y. Kim, C. Park, “Method and apparatus for measuring magnetic write width of magnetic head using burst pattern,” US Patent 6,992,849 (2006).
7. J.Y. Yun, J.J. Kim, C.W. Cho, **C.-D. Yeo**, “Method and apparatus detecting base line popping noise in a read head and stabilizing the magnetic domain of merged magnetoresistive read-write heads using DC write current and read bias current for an assembled disk drive,” US Patent 6,828,784 (2004).

## **PUBLICATIONS**

(\* corresponding author)

### **I. Journal Publications**

#### Accepted & Published

1. N. Shah, J. Song, and **C.-D. Yeo\***, “Thermomechanical Properties and Frictional Contact Behavior of Oxygen Doped DLC Film through Molecular Dynamics Simulation,” *Diamond & Related Materials* 120, 108653, 2021.
2. S.M. Rahman, D. Purani, S. Ali, and **C.-D. Yeo\***, “Effects of SiO<sub>2</sub> Contaminant on Thermo-Mechanical/Chemical Properties and Lubricity of PFPE Lubricants,” *Lubricants* 9 (90), 2021.
3. B. Dankesreiter, J. Song, S. Rahman, N. Shah, and **C.-D. Yeo\***, “Effects of Diffused Hydrogen Atoms on Thermomechanical Properties and Contact Behavior of DLC Film”, *Journal of Applied Physics*, 130, 025303, 2021.
4. H. Won, Y.-K. Hong, M. Choi, F. Yan, G. Mankey, X. Han, W. Lee, **C.-D. Yeo**, T. Lee and J. K. Lee, “Ferromagnetic Branch Design for High Coercivity Alnico Magnet,” *IEEE Magnetics Letters* 12, 7501505, 2021. DOI: 10.1109/LMAG.2021.3084899
5. M. Choi, Y.-K. Hong, H. Won, G. Mankey, **C.-D. Yeo\***, N. Shah, W. Lee, M. Jung, and J. Thiele, “Upper Limit of Carbon Concentration in Ferromagnetic L10-ordered FePt-C for Tb/in<sup>2</sup> Data Storage Density Heat-Assisted Magnetic Recording (HAMR) Media,” *IEEE Trans. Magn.* 57(10), 1-6 (2021). DOI: 10.1109/TMAG.2021.3079188

6. M. Choi, Y.-K. Hong, H. Won, G. Mankey, **C.-D. Yeo\***, W. Lee, M. Jung, T. Lee, and J. K. Lee, "Suppressing Antiferromagnetic Coupling in Rare-Earth Free Ferromagnetic MnBi-Cu Permanent Magnet," *Journal of Applied Physics* **129**, 113902 (2021).
7. J. You, Z. Lin, C. Gray, Z. Wang, and **C.-D. Yeo**, " Numerical Simulations of Hydrogen Interstitial Diffusion and Ferroelectricity Degradation in Lead Titanate Films" *Journal of Physics D: Applied Physics* **54**, 155305 (2021).
8. J. Song, S. Talukder, S. Rahman, Y. Jung, **C.-D. Yeo\***, "Comparison Study on Surface and Thermo-Chemical Properties of PFPE lubricants on DLC Film through MD Simulations," *Tribology International* **156**, 106835 (2021).
9. **C.-D. Yeo\***, M. He, J. Lee, N. M. R. Shah, Y.-K. Hong, M. Choi, J. H. You, D. Purani, J. K. Lee, "Recovering Magnetic Domains of Nanoscale-mechanically Damaged Ferromagnetic Thin Film of Information Data Storage," *Applied Materials Today* **21**, 100825 (2020).
10. J. Lee, **C.-D. Yeo\***, Z. Hu, V. D. Thalangama-Arachchige, J. Kau, E. L. Quitevis, G. Kumar, Y. P. Koh and S. Simon, "Friction and Wear of Pd-Rich Amorphous Alloy (Pd<sub>43</sub>Cu<sub>27</sub>Ni<sub>10</sub>P<sub>20</sub>) with Ionic Liquid (IL) as Lubricant at High Temperature," *Metals* **9**, 1180 (2019).
11. S.M. Rahman, J. Song, and **C.-D. Yeo\***, "Computational study on surface energy of amorphous DLC with respect to hybridization state of carbon and potential functions," *Diamond & Related Materials* **95**, 127 (2019).
12. J. Lee, M. He, Z. Hu, G. Kumar, V. D. Thalangamaarachchige, E. L. Quitevis, and **C.-D. Yeo\***, "Friction and Wear of Pd-rich Amorphous Alloy (Pd<sub>43</sub>Cu<sub>27</sub>Ni<sub>10</sub>P<sub>20</sub>) under Dry and Ionic Liquid (IL) Lubricated Conditions," *Wear* **408–409**, 190 (2018).
13. Z. Lin, J. You, C. Jinghong, and **C.-D. Yeo**, "Molecular Dynamics Simulations of Ferroelectric Domain Formation by Oxygen Vacancy" *Journal of Physics D: Applied Physics* **51**, 185303 (2018).
14. M. He, and **C.-D. Yeo\***, "Evaluation of Thermal Degradation of DLC Film Using a Novel Raman Spectroscopy Technique," *Coatings* **8(4)**, 143 (2018).
15. M. He, and **C.-D. Yeo\***, "Micro-Wear and Friction of Carbon Film with Molecularly Thin PFPE Lubricants," *Journal of Mechanical Science and Technology* **32 (7)**, 3291 (2018).
16. J. Song and **C.-D. Yeo\***, "Finite Element Analysis Simulations of Thermomechanical Head-Disk Interface Contact in Thermal Flying-Height Control Head Slider Design," *Tribology International* **98**, 299 (2016).
17. J. Park, Y.-K. Hong, H.-K. Kim, W. Lee, **C.-D. Yeo**, S.-G. Kim, M.-H. Jung, C.-J. Choi, and O. N. Mryasov, "Electronic structures of MnB soft magnet," *AIP ADVANCES* **6**, 055911 (2016).
18. J. Park, Y.-K. Hong, **C.-D. Yeo**, S.-G. Kim, D. Kuo, L. Gao, and J.-U. Thiele, "Electronic Structure and Magnetic Properties of Mn-substituted Fe-Pt," *IEEE Trans. Mag* **52(7)**, 3201904 (2016).
19. J. Song, S. Lee, J. Lee, and **C.-D. Yeo\***, "Atomic Degradation and Wear of Thin Carbon Films under High Speed Sliding Contact using Molecular Dynamics Simulation," *Tribology Letters* **60:1**, 1–7 (2015) DOI: 10.1007/s11249-015-0577-3.

20. **C.-D. Yeo\***, A. Palazotto, J. Song and R. Buentello, "The Evaluation of Thermomechanical Damage of a Slipper and Rail in a Rocket Sled System," *ASTM Journal of Testing and Evaluation* **44(4)**, 1443 (2016) DOI: 10.1520/JTE20140367.
21. J. Lee, J. Maharjan, M. He, and **C.-D. Yeo\***, "Effects of In-Situ Sliding Contact on Dynamic Adhesion Measurement in Colloidal Probe Technique," *International Journal of Adhesion and Adhesives* **60**, 109 – 116 (2015).
22. M. He, S. Lee, and **C.-D. Yeo\***, "Investigating Atomic Structure of Thin Carbon Film under Mechanical Stress and Frictional Heat Generation," *Surface and Coatings Technology* **261**, 79-85 (2015).
23. S. Lee, M. He, and **C.-D. Yeo\***, "Thermal Degradation and Burnishing Wear of Thin Carbon Film by Frictional Heat Generation," *ASME Trans. Journal of Tribology* **136(4)**, 041603 (2014) DOI: 10.1115/1.4027749.
24. S. Lee, D. Purani, A. Kim, and **C.-D. Yeo\***, "(Invited) Thermomechanical Contact between Magnetic Recording Head and Disk Defect accounting for Heat Partition Factor," *IEEE Trans. Magn.*, 50(30), 3300307 (2014).
25. S. Lee, M. He, G. Abo, Y. Hong, and **C.-D. Yeo\***, "The Effects of Contact Stress on Magnetic Properties of Ferromagnetic Film," *Journal of Applied Physics* **112**, 084901 (2012).
  - a. Featured in Tribology & Lubrication Technology (TLT) Magazine June 2013
    - i. <http://digital.ipcprintservices.com/publication/index.php?i=156749&m=&l=&p=3&pre=>
26. **C.-D. Yeo\***, J.K. Lee, and A.A. Polycarpou, "Dynamic adhesive forces in rough contacting bodies including normal and sliding conditions," *Journal of Adhesion Science and Technology* **26**, 2709-2718 (2012).
27. S.A. Lee, S. Niazie, and **C.-D. Yeo\***, "The Change in Surface Properties of Magnetic Recording Media under Pulsed Laser Application," *Tribology Letters* **47**, 57-65 (2012).
28. S.A. Lee and **C.-D. Yeo\***, "Microwear Mechanism of Head Carbon Film during Head Disk Interface Sliding Contact," *Tribology International* **45**, 30-37 (2012).
29. I.-H. Sung, H. J. Kim, and **C.-D. Yeo**, "First Observation on the Feasibility of Scratch Formation by Pad-Particle Mixture in CMP Process," *Applied Surface Science* **258**, 8298–8306 (2012).
  - b. Featured in the ADINA News (Tech Review)
    - i. <http://www.adina.com/newsgH123.shtml>
30. I.-H. Sung, W.Y. Yang, H. Kwarck and **C.-D. Yeo\***, "Fluid-Structure Interaction Modeling and Simulation of CMP Process for Semiconductor Manufacturing", *Transactions of the Society of Information Storage Systems* **7(2)**, 60-64 (2011).
31. **C.-D. Yeo**, R.R. Katta, J.K. Lee and A. A. Polycarpou, "Effect of asperity interactions on rough surface elastic contact behavior: Hard film on soft substrate," *Tribology International*, Vol. 43, pp. 1438-1448 (2010).
32. **C.-D. Yeo**, R.R. Katta and A.A. Polycarpou, "Improved Elastic Contact Model Accounting for Asperity and Bulk Substrate Deformation," *Tribology Letters* **35**, 91-203 (2009).

33. **C.-D. Yeo**, S. –C. Lee, and A.A. Polycarpou, “Dynamic adhesive force measurements under vertical and horizontal motions of interacting rough surfaces”, *Review of Scientific Instruments* **79**, 015111 (2008).
34. **C.-D. Yeo**, A.A. Polycarpou, S.C. Lee and M. Sullivan, “Friction Force Measurements and Modeling in Hard Disk Drives,” *IEEE Trans. Mag.* **44**, 157-162 (2008).
35. **C.-D. Yeo**, A.A. Polycarpou, J.D. Kiely and Y.-T. Hsia, “Nanomechanical Properties of Ultra-thin Carbon Film Overcoats Using the Nanoindentation Technique”, *Journal of Materials Research* **22**, 141-151 (2007).
36. **C.-D. Yeo**, A.A. Polycarpou, “A Correction to the Nanoindentation Technique for Ultra-shallow Indentation Depths”, *Journal of Materials Research* **22**, 2359-2362 (2007).
37. K.M. Lee, **C.-D. Yeo** and A.A. Polycarpou, “Relationship between scratch hardness and yield strength of elastic perfectly plastic materials using finite element analysis,” *Journal of Materials Research* **23**, 2229-2237 (2008).
38. E. E. Nunes, **C.-D. Yeo**, R. Katta and A. A. Polycarpou, “Computational Analysis of the Effects of Planarization in Pattern Media,” *IEEE Trans. Mag.* **44**, 3667-3670 (2008).
39. K.M. Lee, **C.-D. Yeo** and A.A. Polycarpou, “Nanomechanical Property and Nanowear Measurements for Sub-10 nm Thick Films in Magnetic Storage,” *Experimental Mechanics* **47**, 107-121 (2007).
40. K.M. Lee, **C.-D. Yeo** and A.A. Polycarpou, “Mechanical Property Measurements of Thin Film Carbon Overcoat on Recording Media towards 1 Tb/in<sup>2</sup>,” *Journal of Applied Physics* **99**, 08G906 (2006).

Under review & To be submitted

41. S. Talukder, **C.-D. Yeo\***, Y.-K. Hong, M. Choi, J. Bishop, and R. Flicek, “Analytical Modeling and Simulation of Electrical Contact Resistance (ECR) for Rough Electrode Surface Contact,” AIP Advances, 2021.
42. S. Talukder, B. Dankesreiter, **C.-D. Yeo\***, Y.-K. Hong, M. Choi, J. Bishop, and R. Flicek, “Effects of Structural Dynamics on Electrical Contact Resistance (ECR) for Rough Electrode Surface Contact,” 2021.
43. B. Dankesreiter, N. Shah, **C.-D. Yeo\***, “Computational Study on Nitrogenated Amorphous Carbon Film under Thermomechanical Surface Contact,” 2021.
44. N. Shah, **C.-D. Yeo\***, Y.-K. Hong, M. Choi, “Investigation of Magnetic Properties for Nickel Oxides through First Principle Calculations,” 2021.

## II. Invited Talks/Lectures

1. “Rough Surface Contact Model to Investigate Electrical Contact System,” Sandia National Laboratory (Albuquerque, NM), August 19, 2020.
2. “Experimental Study on Material Degradation and damage of Amorphous Alloy under Sliding Contact,” Mechanical Engineering Seminar, Guizhou University, China, May 23, 2019.

3. "Friction and Wear of Pd-rich Amorphous Alloy under Dry and IL-Lubricated Conditions," Mechanical Engineering Seminar Series, Seoul National University of Science and Technology, May 30, 2018.
4. "Magnetic Property Change of Recording Media by Mechanical Contact and Temperature Rise," Seagate Technology RMO, May 12, 2017.
5. "Thermomechanical/chemical Degradation of Thin Carbon Film under High Speed Surface Contact," IEEE Magnetics Society Distinguished Lectures jointly sponsored by MINT and IEEE Alabama Chapter, November 18, 2016.
6. "Thermo-mechanical/chemical Degradation of Thin Carbon Film under High Speed Surface Contact," Material Science and Engineering Seminar Series, Dankook University, June 14, 2016.
7. "Bonding Preference of Hydrocarbon Molecules on a Lubricated Disk Surface," The Collaborative Conference on 3D and Materials Research (CC3DMR, Incheon/Seoul), June 19, 2016
8. "Bonding Preference of Hydrocarbon Molecules on Lubricated Disk Surface," Seagate Conclave, August 21, 2015.
9. "Thermomechanical Contact and Surface Damage in Head-Disk-Interface," Seagate Conclave, July 20, 2014.
10. "Carbon Products as a Smart Corrosion and Wear Inhibitor for Metallic Structure and Devices," Army Research Laboratory (Aberdeen Proving Ground, MD), January 31, 2014.
11. "Atomic Structure Change and Burnishing Wear of Thin Carbon Film during High-Speed Sliding Contact," Mechanical Engineering Seminar Series, Texas A&M University, October 23, 2013.
12. "Thermomechanical Contact between Magnetic Recording Head and Disk Defect accounting for Heat Partition Factor," IEEE The 24<sup>th</sup> Magnetic Recording Conference, August 21, 2013.
13. "Thermomechanical Contact and Surface Damage in Head-Disk-Interface," Seagate Research Center in Korea, August 14, 2013.
14. "Computational Study on the Mechanism of Friction and Wear of Rocket Sled System," Air Force Institute of Technology, January, 2013.
15. "Frictional and adiabatic heat on the wear of head carbon film." Seagate Technology (Shakopee, Minnesota), January 9, 2013.
16. "Mechanically Induced Electrical/Magnetic Degradation.", Seagate Technology (Shakopee, Minnesota), August 1, 2013.
17. "Effects of Mechanical Contact Stress on Magnetic Properties of Ferromagnetic Film," Interdisciplinary Lecture Series, College of Engineering, Texas Tech University, November, 2012
18. "Rough Surface Interactions at Micro-/Nano-Scale Contact Systems," Mechanical Engineering seminar, Texas Tech University, October, 2012
19. "Thermo-Magneto-Mechanical Performance of a Media under High Speed HDI Contact," Seagate Technology RMO, October 12, 2012

20. "Thermo-Mechanical Contact and Micro-Wear of Head Carbon Film," Seagate Technology TCO, December 9, 2011.
21. "Pressure Induced Media Deformation," Western Digital Corporation, October 19, 2010.
22. "ADHESIVE ROUGH SURFACE CONTACT AT MICRO/NANO-SYSTEMS," Mechanical Engineering seminar series, Yonsei University (Seoul, Korea), July 19, 2010.
23. "ADHESIVE ROUGH SURFACE CONTACT AT MICRO/NANO-SYSTEMS," Brain Korea (BK) seminar series, SungKyunKwan University (Suwon, Korea), July 22, 2010.

### III. Peer Reviewed Conference Abstract with Podium Presentation

1. M. Choi, Y.-K. Hong, H. Won, **C.-D. Yeo**, S. Kim, H. Lee, W. Lee," Tuning Spin and Magnetocrystalline Anisotropy of L1-ordered MnAl with Transition Metal Elements," IEEE International Magnetic Conference (INTERMAG) (Virtual), April 26-30, 2021.
2. **C.-D. Yeo**, S. Rahman "Temperature Dependent Material Behavior of Molecularly Thin Lubricants on Magnetic Recording Media," K-TRIB 2020 (Virtual), December 2, 2020.
3. **C.D. Yeo**, N. Shah, Y.-K. Hong, M. Choi, J. You, S. Ali, D. Purani, J. Lee, "Effects of Thermo-Mechanical Contact on Ferromagnetic Thin Film of PMR (perpendicular magnetic recording) Media," 65th Annual Conference on Magnetism and Magnetic Materials (Virtual), November 4, 2020.
4. **C.-D. Yeo**, C.-L. Kim, H.-J. Kim, K.-H. Chung, I.-H. Sung, "A review of tribology R&D trends: Prospects of future challenges and issues," 68th Korean Tribologist Society Conference (Pusan, Korea), October 2019.
5. **C.-D. Yeo**, S. Rahman, "Thermomechanical degradation of DLC under lubricated condition," 46th International Conference on Metallurgical Coating and Thin Films (San Diego, USA), May 21, 2019.
6. **C.-D. Yeo**, Y.-K. Hong, Y.-K., Choi, M., Won, H., Lee, W., Kuo, D., Thiele, J.-U., "Computational Materials Science with Special Emphasis on Magnetic Materials," 2019 MMM-IEEE Intermag (Washington DC, USA), January 2019.
7. **C.-D. Yeo**, Hong, Y.-K., "Computational Materials Science with Special Emphasis on Magnetic Materials," International Conference of Asian Union of Magnetism Societies 2018 (Jeju, Korea), June 4, 2018.
8. **C.-D. Yeo**, Lee, J., "Friction and Wear Behavior of Metallic Glasses with Ionic Liquids as Lubricants," STLE 73rd Annual Meeting and Exhibition (Minneapolis, USA), May 21, 2018.
9. **C.-D. Yeo**, Choi, M. Hong, Y.-K. Lee, W., Won, H., Kim, S.-G., "Electronic Structures of Ferromagnetic MnAl-C Intermetallic Compound," 62nd Annual Conference on Magnetism and Magnetic Materials (Pittsburgh, USA), November 6, 2017.
10. **C.-D. Yeo**, Song, J., "Molecular Dynamics Simulations for the Bonding Preference of Hydrocarbon Contaminants in Hard Disk Drives," World Tribology Congress (Beijing, China), September 19, 2017.
11. **C.-D. Yeo**, Choi, M., Hong, Y.-K., Lee, W., Won, H., "Calculation of Magnetization and Magneto-crystalline Anisotropy for Carbon-doped Fe-Pt Ferromagnet," Advances in Functional Materials Conference 2017 (Los Angeles, USA), August 14, 2017.

12. **C.-D. Yeo**, Lee, J., "Friction and Wear Mechanism of Metallic Glasses with Ionic Liquids as a Lubricant," STLE 72nd Annual Meeting and Exhibition (Atlanta, USA), May 21, 2017.
13. **C.-D. Yeo**, Song, J., "Lubricant Transfer at the Head-disk Interface in Hard Disk Drive using Molecular Dynamics Simulations," STLE 72nd Annual Meeting and Exhibition (Atlanta, USA), May 21, 2017.
14. **C.-D. Yeo**, M. He, S. Lee, J. Song "THERMOMECHANICAL PROPERTIES AND MICRO-CONTACT PERFORMANCE OF OXIDIZED DLC FILM USING MOLECULAR DYNAMICS SIMULATIONS," WCCM XII and APCOM VI (Seoul, Korea), July 26, 2016.
15. **C.-D. Yeo**, J. Song, "Bonding Preference of Hydrocarbon Molecules on a Lubricated Disk Surface," STLE Annual Meeting, STLE (Las Vegas, NV), May 17, 2016.
16. **C.-D. Yeo**, M. He, S. Lee, "Thermomechanical/chemical Degradation of DLC Coating under High Speed Contact," ASME IMECE (Houston, TX), November 17, 2015.
17. Chang, J., Song, J., **Yeo, C.-D.**, Kim, J., "Exploring Factors Influencing Perceived Quality on Sportswear Fabric," 2015 ITAA Annual Conference, International Textile & Apparel Association (ITAA) (Santa Fe, NM), November 11, 2015.
18. **C.-D. Yeo**, J. Song, "Study on the Thermomechanical Properties and Contact Performance of Oxidized DLC Films Using Molecular Dynamics Simulation," STLE Tribology Frontiers, STLE (Denver, CO), October 23, 2015.
19. **C.-D. Yeo**, J. Song, "Atomic-scale Contact Behavior of Thin Carbon Films under High Speed Sliding Contact," STLE Tribology Frontiers (Chicago, IL), October 24, 2014.
20. **C.-D. Yeo**, J. Song, A. Palazotto, "Thermomechanical Wear of Slipper and Rail in Rocket Sled System," World Tribology Congress (Turin, Italy), September 11, 2013.
21. **C.-D. Yeo**, S. Lee, "Burnishing Wear Mechanism of Thin Carbon Film during High Speed Sliding Contact," Society of Engineering Science (Providence, RI), July 30, 2013.
22. **C.-D. Yeo**, S. Lee "Effect of Contact Stress on Magnetic Properties of Ferromagnetic Materials," ASME International Joint Tribology Conference (Denver, CO), October 11, 2012.
23. **C.-D. Yeo**, S. Lee, "Thermo-Mechanical Contact and Micro-Wear in Head Disk Interface," ASME International Joint Tribology Conference (Los Angeles, CA), October 22, 2011.
24. **C.-D. Yeo**, S. Lee, "Mixed Effects of Localized Heating and Mechanical Contact on Head-Disk-Interface Reliability in Heat Assisted Magnetic Recording," ASME International Joint Tribology Conference (San Francisco, CA), October 2010.

#### IV. Peer Reviewed Conference Proceedings

1. Chang, H.\*, Song, J., Yeo, C.-D., Kim, J., "Exploring factors influencing perceived quality on sportswear fabric," International Textile & Apparel Association Proceedings, Santa Fe, NM.
2. S.A. Lee and **C.-D. Yeo\***, "Thermo-Mechanical Contact and Micro-Wear in Head Disk Interface," ASME/STLE International Joint Tribology Conference 2011, pp.317-319 (2011).

3. **C.-D. Yeo** and A.A. Polycarpou\*, “Elastic Contact Model Accounting for Both Asperity and Substrate Compliance With Application to Patterned Media,” ASME/STLE International Joint Tribology Conference 2007, pp. 1121-1122 (2007).

### **TEACHING INTERESTS**

- Material Science and Engineering, Material Behavior, Mechanics of Solids, Statics, Elasticity, Contact Mechanics, Computational Mechanics, Design, Dynamics, Tribology, Engineering Statistics

### **TEACHING EXPERIENCE**

- Courses taught at Texas Tech University
  - ME 3311 Materials Science and Engineering
  - ME 3303 Mechanics of Solids
  - ME 2301 Statics
  - ME 2302 Dynamics
  - ME 5340 Elasticity
  - ME 5345 Computational Mechanics
  - ME 5343 Contact Mechanics of Engineering Materials
- Faculty-Led Teaching Abroad Program
  - Seville, Spain in 2015, 2017, 2018, 2021
  - Tokyo, Japan in 2019

### **STUDENT ADVISING (as an academic advisor or dissertation chair)**

- Graduate students (total 18, 10 PhD and 8 MS)
  - Number of PhD degreed students: 6
  - Number of MS degreed students: 8
  - Number of PhD students under currently advising: 4
- Undergraduate students (total 12)
  - Number of UG students (graduated): 11
  - Number of UG students under currently advising: 1

### **COMMUNITY SERVICE**

- Technical Mentor, the Destination Imagination team in Preston Smith Elementary School, 2010

### **EXTERNAL SERVICE**

- ASME contact mechanics committee: 2009 ~ Present
- Review Editor, Frontiers in Mechanical Engineering: Tribology, 2017 ~ present
- Editorial Board Member: International Journal of Mechanical Systems Engineering, 2016 ~ present
- Editorial Board Member: Korean Society of Tribology and Lubrication Engineers, 2011 ~ present

- Associate Editor: Korean Society of Tribology and Lubrication Engineers, 2014 ~ present
- Session Chair: ASME IMECE 2015, Surface Engineering and Coatings Division
- Session Chair: STLE Tribology Frontiers 2014, Materials Tribology Division
- Session Chair: International Joint Tribology Conference 2010, Magnetic Storage Division
- Session Chair: International Joint Tribology Conference 2011, Magnetic Storage Division
- Served as a proposal reviewer: NSF, DOE
- Served as a peer reviewer of: 2007 ~ Present
  - ✓ Nature, Proceedings of the National Academy of Sciences (PNAS), Applied Physics Letters, Review of Scientific Instruments, IEEE Transaction of Magnetics, Solar Energy, Composite Science and Technology, Transaction of ASME, Journal of Tribology, Tribology International, Polymer Composites, Tribology Letters, STLE Tribology Transactions, Journal of Aerospace Engineering, Journal of Adhesion Science and Technology, Journal of Mechanical Science and Technology

### **UNIVERSITY, COLLEGE, DEPARTMENT SERVICE**

- Associate Chair, Graduate Program and Research Affairs: August 2018 ~ Aug. 2019
- Coordinator of Mechanical Engineering (ME) Seminar Series Spring 2015
- ME Graduate Program Committee, 2015~2019
  - ✓ Course review and optimization for MS and PhD programs
  - ✓ Evaluate applicants of ME graduate programs
  - ✓ Strategic plans to improve research activities in ME
- Lead committee member, “Renovation of ME PhD Preliminary Exam”, 2016 ~ 2017
  - ✓ Revisit and optimize the evaluation procedures: Subject Test + Oral Exam
- ME Space Reorganization Committee member, 2015
- Institutional Effectiveness (IE) Committee for the College, 2015~2016
  - ✓ Strengthen institutional effectiveness across TTU in terms of educational program
- Graduate School Dean’s Representative

### **INDUSTRIAL TECHNICAL CONSULTANT**

- Western Digital: 2010 ~ 2011
  - ✓ Thin film reliability
  - ✓ Mechanical stress and deformation of head slider due to localized air pressure