

List of Publications: Thomas E. Karis

August 19, 2017

Magnetic Recording

1. T.E. Karis, and V.J Novotny, "Pin-on-Disk Tribology of Thin Film Magnetic Recording Disks," J. Appl. Phys., 66(6)2706-2711(1989).
2. T.E. Karis, V.J. Novotny, and R.M. Crone, "Sliding Wear Mechanism on Particulate Magnetic Recording Media," STLE SP-29, 35-42(1990).
3. R. Crone, M. Jhon, B. Bhushan, and T. Karis, "Modeling the Flying Characteristics of a Magnetic Head Over Rough Rigid Disk Surfaces," J. of Trib., Trans. ASME, 113(4)739-749(1991).
4. R.M. Crone, M.S. Jhon, B. Bhushan, and T.E. Karis, "Transient Behavior of a Rough Slider Dropped Over a Rough Rigid-Disk Surface," Adv. Info. Storage Syst., 1(1)189-212(1991).
5. R.M. Crone, M.S. Jhon, B. Bhushan, and T.E. Karis, "Numerical Simulation of Dynamic Slider Loading and Transient Slider Response to Surface Defects," Adv. Info. Storage Syst., 3,15-31(1991).
6. R.M. Crone, P.R. Peck, M.S. Jhon, T.E. Karis, and B. Bhushan, "The Simulation of the Slider-Disk Interface Under Ultra-Low Flying Conditions," J. Mag. Soc. of Japan, vol. 15, No. S2, 525-530(1991).
7. V.J. Novotny, and T.E. Karis, "Sensitive Tribological Studies on Magnetic Recording Systems," Adv. Info. Storage Syst., 2,137-152(1991).
8. V.J. Novotny, T.E. Karis, and N.W. Johnson, "Lubricant Removal, Degradation, and Recovery on Particulate Magnetic Recording Media," J. Trib., Trans. ASME, 114(1)61-67(1992).
9. R.M. Crone, P.R. Peck, M.S. Jhon, B. Bhushan, and T.E. Karis, "The Behavior of a Magnetic Slider Over a Rigid-Disk Surface: Comparison of Several Approximations of the Modified Reynolds Equations," Adv. Info. Storage Syst., 4,105-122(1992).
10. R.M. Crone, P.R. Peck, M.S. Jhon, B. Bhushan, and T.E. Karis, "The Flow Factor Approach in Air Bearing Simulation," Adv. Info. Storage Syst., 4,123-138(1992).
11. R.M. Crone, P.R. Peck, M.S. Jhon, and T.E. Karis, "Scaling Criteria for Slider Miniaturization Using the Generalized Reynolds Equation," J. Tribol., 115(4)566-572(1993).
12. T.E. Karis, V.J. Novotny, and R.D. Johnson, "Mechanical Scission of Perfluoropolyethers," J. Appl. Polym. Sci., 50,1357-1368(1993).
13. T.E. Karis and R.L. Lyn, "A Novel High Speed Optical Inspection Tool for Thin Film Disks," Adv. Info. Storage Syst.,5,363-374(1993).
14. P.R. Peck, R. N. Kono, M.S. Jhon, and T.E. Karis, "A Novel Accelerated Wear Test for Magnetic Recording Disks," IEEE Trans. Magn., 29(6)3969-3971(1993).
15. P.R. Peck, R. N. Kono, M.S. Jhon, and T.E. Karis, "Acoustic Emission Analysis During High Velocity Accelerated Wear Test," Adv. Info. Storage Syst., 6,121-135(1995).
16. T.E. Karis, "The Effect of Particulate Media Thickness and Porosity on Lubricant Areal Density," Adv. Info. Storage Syst., 6,137-149(1995).
17. T.E. Karis, V.J. Novotny, R.D. Johnson, and M.S. Jhon, "Ultrasonic Scission of Perfluoropolyethers," J. Magn. Soc. Japan, vol. 18, No. S1,509-519(1994).
18. T.E. Karis, G.W. Tyndall, D. Fenzel-Alexander, and M.S. Crowder, "Ellipsometric Measurement of Solid Fluorocarbon Film Thickness on Magnetic Recording Media," J. Appl. Phys., 81(8)5378-5380(1997).

19. T.E. Karis, G.W. Tyndall, D. Fenzel-Alexander, and M.S. Crowder, "Characterization of a Solid Fluorocarbon Film on Magnetic Recording Media," *J. Vac. Sci. Technol. A*, 15(4)2382-2387(1997).
20. T.M. O'Connor, M.S. Jhon, C.L. Bauer, B.G. Min, D.Y. Yoon, and T.E. Karis, "Surface Diffusion and Flow Activation Energies of Perfluoroalkylether," *Tribology Letters*, 1(2,3)219-223(1995).
21. T.E. Karis, K.K. Kanazawa, P.M. Jones, and C.S. Bhatia, "Slider and Disk Surface Potential Measurement by Scanning Kelvin Probe," *ISPS-Vol. 1, Advances in Information Storage Processing Systems*, ASME 1995, and *Advances in Information Storage Systems*, submitted, 1995.
22. T.E. Karis, D.C. Miller, D.J. Pocker, "Thickness of a Fluoropolymer Antiwetting Agent on Magnetic Recording Disk Sliders," *IBM Research Report*, Oct. 1995.
23. T.M. O'Connor, Y-R. Back, M.S. Jhon, B.G. Min, D.Y. Yoon, T.E. Karis, "Surface Diffusion of Thin Perfluoropolyakylether Films," *J. Appl. Phys.*, 79(8)5788-5790(1996).
24. V.J. Novotny, T.E. Karis, R.J. Whitefield, "Surface Potential and Magnetic Recording Media Tribology," *STLE preprint No. 96-TC-6C-1(1996)*, *Tribol. Trans.*, 40(1)69-74(1997).
25. W.L. Prater, G.J. Stone, K.W. Tierney, T.E. Karis, "Servo Performance of Actuator Bearing Greases," *ASME Conference Proceedings ISPS-Vol.2*,131-137(1996), and *Adv. Info. Storage Syst.*, 8,17-31(1998).
26. T.E. Karis, V.J. Novotny, "Surface Potential of Thin Perfluoropolyether Films on Carbon," *Appl. Phys. Lett.*, 71(1)52-54(1997).
27. T.E. Karis, G.W. Tyndall, M.S. Crowder, "Tribology of a Solid Fluorocarbon Film on Magnetic Recording Media," *IEEE Trans. Magn.*, 34(4)1747-1749(1998).
28. T.E. Karis and M.S. Jhon, "The Relationship Between PFPE Molecular Rheology and Tribology," *Trib. Lett.*, 5(4)283-286(1998).
29. G.W. Tyndall, T.E. Karis, M.S. Jhon, "Spreading Profiles of Molecularly Thin Perfluoropolyether Films," *Trib. Trans.*, 42(3)463-470(1999).
30. T.E. Karis, G.W. Tyndall, "Calculation of Spreading Profiles for Molecularly Thin Films from Surface Energy Gradients," *J. Non-Newt. Fluid Mech.*, 82,287-302(1999).
31. W. Qian, W.W. Childers, R.B. Prime, T.E. Karis, and M.S. Jhon, "Elastic Analysis of Thermally Induced Stresses in the Magnetic Recording Head Gimbal Assembly," *J. Info. Storage Proc. Syst.*, 1,159-168(1999).
32. W. Qian, W.W. Childers, R.B. Prime, T.E. Karis, and M.S. Jhon, "Influence of Adhesive Viscoelasticity on Thermal Bending of a Magnetic Recording Slider," *J. Info. Storage Proc. Syst.*, 1,169-178(1999).
33. W. Qian, W.W. Childers, R.B. Prime, T.E. Karis, and M.S. Jhon, "Crown Sensitivity of the Magnetic Recording Head Gimbal Assembly Bonded by a Viscoelastic Adhesive," *Mech. Time Dep. Mater.*, 2(4)371-387(1999).
34. T.E. Karis, "Water Adsorption on Thin Film Magnetic Recording Media," *J. Coll. Int. Sci.*, 225(1)196-203(2000).
35. T.E. Karis, "Thin Film Disk Tribology at Ultra-Low Flying Height," *ASME Proceedings of the Symposium on Interface Tribology Towards 100 Gbit/In² and Beyond*, at the *ASME/STLE Jt. International Tribology Conference & Exhibtion*, October 1-4, 2000 in Seattle, Washington, *TRIB-Vol. 10*, pp. 69-73.

36. T.E. Karis, "Thin Film Magnetic Recording Media Lubrication System," Digests of AMPRC2000, TB06-01, November 6-8, 2000, Tokyo, Japan, IEEE Magnetics Society, IEEE, Piscataway, NJ, ISBN 0-7803-6254-3.
37. T.E. Karis, G.W. Tyndall, R.J. Waltman, "Lubricant Bonding Effects on Thin Film Disk Tribology," *Trib. Trans.*, 44(2)249-255(2001).
38. T.E. Karis, "Chemistry of Magnetic Recording Disk Surfaces with Intermittent Asperity Contacts," *IEEE Trans. Magn.*, 37(2)924-928(2001).
39. T.E. Karis, "Tribocchemistry in Contact Recording," *Trib. Lett.*, 10(3)149-162(2001).
40. T.E. Karis, B. Marchon, V. Flores, and M. Scarpulla, "Lubricant Spin-Off From Magnetic Recording Disks," *Trib. Lett.*, 11(3-4)151-159(2001).
41. T.E. Karis, "Nano-Tribology of Thin Film Magnetic Recording Media," book chapter in *Nanotribology: Critical Assessment and Research Needs*, ed's S.M. Hsu and Z.C. Ying, Kluwer, Boston, 2002, pp. 291-325.
42. T.E. Karis, "Lubricant Additives for Magnetic Recording Disk Drives," book chapter in *Lubricant Additives: Chemistry and Applications*, ed. L. Rudnick, Marcel Dekker, Inc., New York, 2003, pp. 467-511.
43. T. E. Karis, and M. A. Tawakkul, "Water Adsorption and Friction on Thin Film Magnetic Recording Disks," *Tribol. Trans.*, 46(3)469-478(2003).
44. B. Marchon, T. Karis, Q. Dai, and R. Pit, "A Model for Lubricant Flow from Disk to Slider," *IEEE Trans. Magn.*, 39(5)2447-2449(2003).
45. T.E. Karis and U.V. Nayak, "Liquid Nanodroplets on Thin Film Magnetic Recording Disks," *STLE Preprint 2003-TRIB-063*, 2003, *Trib. Trans.*, 47(1)103-110(2004), *Tribology & Lubrication Technology*, 60(9)42-51(2004).
46. T.E. Karis, W.T. Kim, and M.S. Jhon, "Spreading and Dewetting in Nanoscale Lubrication," *Trib. Lett.*, 18(1)27-41(2005).
47. T.E. Karis, B. Marchon, M.D. Carter, P.R. Fitzpatrick, and J.P. Oberhauser, "Humidity Effects in Magnetic Recording," *IEEE Trans. Magn.*, 41(2)593-598(2005).
48. T.E. Karis, X.-C. Guo, E. Marinero, and B. Marchon, "Surface Chemistry of NiP Plated Substrates," *IEEE Trans. Magn.*, 41(10)3247-3249(2005).
49. M.S. Jhon and T.E. Karis, "Thin Liquid Film Deposition," chapter in *Encyclopedia of Chemical Processing*, Dekker Encyclopedias, Taylor and Francis Books, pp. 3075-3087, www.dekker.com, 2006.
50. T.E. Karis, "Lubricants for the Disk Drive Industry," book chapter in *Synthetic, Mineral Oil, and Bio-Based Lubricants Chemistry and Technology*, ed. L. Rudnick, CRC Press, Taylor & Francis Group, LLC, Boca Raton, FL, pp. 623-654(2006).
51. B. Marchon and T.E. Karis, "Poiseuille flow at a nanometer scale," *Europhys. Lett.* 74(2)294-298(2006).
52. B. Marchon, X-C. Guo, T. Karis, H. Deng, Q. Dai, J. Burns, and R. Waltman, "Fomblin Multidentate Lubricants for Ultra-Low Magnetic Spacing," *IEEE Trans. Magn.*, 42(10)2504-2506(2006).
53. T.E. Karis, X-C. Guo, B. Marchon, V. Raman, and Y-L. Hsiao, "Cobalt Oxalate Formation on Thin-Film Magnetic Recording Media," *IEEE Trans. Magn.*, 42(10)2507-2509(2006).
54. R-H. Wang, H.R. Wendt, C.A. Brown, C.A. Lum, S. McCoy, T. Karis, "Enhanced Reliability of Hard Disk Drive by Vapor Corrosion Inhibitor," *IEEE Trans. Magn.*, 42(10)2498-2500(2006).

55. X-C. Guo, V. Raman, T.E. Karis, and Y.Z. Yao, "Flyability Failures Due to Siloxanes at the Head-Disk Interface Revisited," *IEEE Trans. Magn.*, 43(6)2223-2225(2007).
56. T.E. Karis and X-C. Guo, "Molecular Adhesion Model for the Bridged State of a Magnetic Recording Slider," *IEEE Trans. Magn.*, 43(6)2232-2234(2007).
57. T.E. Karis, X-C. Guo, and J-Y. Juang, "Dynamics in the Bridged State of a Magnetic Recording Slider," *Trib. Lett.*, 30(2)123-140(2008).
58. T.E. Karis and D. Pocker, "Surfactants in Magnetic Recording Technology," pp. 59-88, in Surfactants in Tribology, ed's G. Biresaw and K.L. Mittal, CRC Press, Boca Raton, FL May 2008.
59. T.E. Karis, "Lubricants for the Disk Drive Industry," pp. 523-584, in Lubricant Additives: Chemistry and Applications, 2nd edition, ed. L. Rudnick, CRC Press, Taylor & Francis Group, LLC, Boca Raton, FL, (2009).
60. T.E. Karis, "The Role of Surface Science in Magnetic Recording Tribology," pp. 457-505, in Surfactants in Tribology Volume 2, G. Biresaw and K. L. Mittal, Editors, CRC Press, Taylor & Francis Group, LLC, Boca Raton, FL, (2011).
61. J. Lille, T. Karis, D. Vasquez, and T-W. Wu, "Imprint resist properties for bit patterned media (BPM)," *MRS Proceedings*, 1340, mrss11-1340-t01-04(6 pages), online Aug. 10 (2011).
62. T.E. Karis, "Lubricants for the Disk Drive Industry," pp. 657-698 in Synthetics, Mineral Oil, and Bio-Based Lubricants Chemistry and Technology, 2nd edition, ed. L. Rudnick, CRC Press, Taylor & Francis Group, LLC, Boca Raton, FL, (2013).
63. T.E. Karis, "Surfactants for Electric Charge and Evaporation Control in Fluid Bearing Motor Oil," pp. 437-462, in Surfactants in Tribology Volume 3, G. Biresaw and K. L. Mittal, Editors, CRC Press, Taylor & Francis Group, LLC, Boca Raton, FL, (2013).
64. B. Marchon, N. Tagawa, B. Liu, T. Karis, and J-Y. Juang, "Tribology of the Head Disk Interface," *Advances in Tribology*, vol. 2013, article ID 574158 (2013).
65. A. Ovcharenko, T. Karis, JP Peng, "Correlation of Disk Topography Waves with Nanometer-Scale Lubricant Moguls and Magnetic Head Media Spacing," *Tribol Lett* (2017) 65: 122. <https://doi.org/10.1007/s11249-017-0907-8>

Other Areas of Research

1. R. Rajagopalan, and T.E. Karis, "Effect of Electrokinetics on the Removal of Colloidal Particles From Liquids," *Water* 1978, *AICHE Symposium Series*, ed. G.F. Bennett, 75(190)73-81(1979).
2. T.E. Karis, D.C. Prieve, and S.L. Rosen, "Lateral Migration of a Rigid Sphere in Torsional Flow of a Viscoelastic Fluid," *AICHE J.*, 30(4)631-636(1984).
3. T.E. Karis, D.C. Prieve, and S.L. Rosen, "Anomalous Lateral Migration of a Rigid Sphere in Torsional Flow of a Viscoelastic Fluid," *J. Rheol.*, 28(4)381-392(1984).
4. L. Aylward, and T.E. Karis, "Friction Coefficients of Some Commercial Polymers by Startup Transient," *ASLE-SP19*, vol. II, pp.93-100(1985).
5. T.E. Karis, R. Siemens, W. Volksen, and J. Economy, "Melt Processing of Poly(P-Oxybenzoate)," *Mol. Cryst. and Liq. Cryst. Nonlin. Optics*, vol. 157, pp.567-575(1988).
6. J. Economy, W. Volksen, C. Viney, R. Geiss, R. Siemens, and T.E. Karis, "The Nature of Thermal Transitions in Poly(p-oxybenzoate)," *Macromolecules*, 21(9)2777-2781(1988).

7. C.M. Seymour, T.E. Karis, and G.G. Marshall, "Melt Rheology of Partially Crosslinked Carbon Black Composites," ACS Symposium Series, Polymers in Information Storage Technology, Ed. K.L. Mittal, Plenum Publishing Corp., p.431-441, 1989.
8. A. Muhlebach, J. Economy, R.D. Johnson, T. Karis, and J. Lyster, "Direct Evidence for Transesterification and Randomization in a Mixture of Homopolyesters of Poly(HBA) and Poly(HNA) above 450 °C," *Macromolecules*, 23,1803-1809(1990).
9. T.E. Karis, C.M. Seymour, and M.S. Jhon, "The Coupled Relaxation Model for Toner Melt Rheology," *Polymer Engineering and Science*, 31(2)99-103(1991).
10. J. Frazier and T. Karis, "Rheological Measurements and the Screening Performance of Several Commercial Solder Pastes," ISHM'91 Proceedings, The International Society for Hybrid Microelectronics, ISBN 0-930815-29-1, pp. 228-234(1991).
11. M.E. Best, T.E. Karis, J.A. Logan, J.R. Lyster, R.T. Lynch, and R.P. McCormack, "Prediction of Optical Disk Tracking Servo Signals From Surface Microtopography Measured by Scanning Tunneling Microscopy," *Rev. Sci. Instr.*, 62(4)993-995(1991).
12. T.E. Karis, M.E. Best, J.A. Logan, J.R. Lyster, R.T. Lynch, and R.P. McCormack, "Verification of Tracking Servo Signal Simulation From Scanning Tunneling Microscope Surface Profiles," *SPIE Proceedings, Optical Data Storage '91*, vol. 1499, 366-376(1991).
13. T.E. Karis, and J. Economy, "Sol-Gel Route to High T_c Ceramic Precursors," *Journal of Materials Research*, 6(8)1623-1628(1991).
14. T.E. Karis, O.O. Park, and D.Y. Yoon, "Rheology of Thermotropic Liquid Crystalline Copolyester Vectra E," *J. Rheol.*, 36(8), 1587-1603(1992).
15. R.N. Kono, M.S. Jhon, and T.E. Karis, "Depth Distribution of Birefringence in Magneto-Optical Recording Disk Substrates," *J. Appl. Phys.*, 75(10)6867-6869(1994).
16. K.R. Shull and T.E. Karis, "Dewetting Dynamics for Large Equilibrium Contact Angles," *Langmuir*, 10,334-339(1994).
17. T.E. Karis, T.P. Russell, Y. Gallot, and A.M. Mayes, "A Lower Critical Ordering Temperature in a Diblock Copolymer Melt," *Nature*, 368,729- 731(1994).
18. T.E. Karis, "Applications of Rheology in the Computer Industry," *Plastics Gateway to the Future, Proceedings of the SPE 52nd Annual Technical Conference and Exhibits*, 1239-1242(1994), *J. Appl. Polym. Sci.*, 59(9)1405-1416(1996).
19. T.E. Karis, T.P. Russell, Y. Gallot, and A.M. Mayes, "Rheology of the Lower Critical Ordering Transition," *Macromolecules*, 28,1129-1134(1995).
20. S-J. Kim, T.E. Karis, and R.J. Tweig, "Long Term Stability of Supercooled Liquid of Branched Molecule," *J. Materials Science Letters*, 14,901-903(1995).
21. R-N. Kono, M.S. Jhon, and T. Karis, "A Comparison of Techniques for Substrate Birefringence Measurement," *Optical Data Storage Conference Edition, 1994 Technical Digest Series*, vol. 10, pp. 19-20(1994), *SPIE Proceedings, Optical Data Storage '94*, vol. 2338,16-28(1994).
22. T.E. Karis, S.J. Kim, P.L. Gendler, and Y.Y. Cheng, "Organic Monomeric Glass: Nitro Substituted Dibenzoyl N-Methyl Ethylenediamine Derivatives," *J. Non-Cryst. Solids*, 191(3)293-303(1995).
23. T.E. Karis and C.M. Seymour, "Internal Release Agents for Electrophotographic Toner," *J. Imaging Science and Technology*, 40(5)462-471(1996).
24. T.E. Karis, "An Overview of Rheology in the Computer Industry," *J Applied Polym. Sci.*, 59,1405-1416(1996).

25. S-J. Kim and T.E. Karis, "Glass Formation From Low Molecular Weight Organic Melts," *J. Mater. Res.*, 10(8)2128-2136(1995).
26. D. Yoon, Y. Ando, O. Ok Park, T.E. Karis, D. Dawson, T. Huang, and, "Annealing Effects of a Thermotropic Liquid Crystalline Copolyester Based on 6-Hydroxy 2-Napthoic Acid, p-Hydroxybenzoic Acid, Terephthalic Acid and 4,4'-Biphenol," *ACS Polymer Preprints*, 37(1)81-82(1996).
27. T.E. Karis, D.J. Dawson, C.R. Davis, R.-N. Kono, G. Kim, M.S. Jhon, and S.J. Kim, "Rapid Prototyping Materials Rheology," *J. Imaging Science and Technology*, 40(2)147-155(1996).
28. T.E. Karis, J.L. Miller, H.E. Hunziker, M.S. de Vries, D.A. Hopper, and H.S. Nagaraj, "Oxidation Chemistry of a Pentaerythritol Tetraester Oil," *Trib. Trans.*, 42(3),431-442(1999).
29. D.A. Hopper, T.E. Karis, "NMR Spectroscopy of Several Components for a Lithium Grease," IBM Research Report, RJ10068, 2/13/97.
30. T.E. Karis, R.J. Twieg, P.M. Lundquist, J. Castro, "Polarization of an Organic Monomeric Glass," *Appl. Phys. Lett.* 71(22)3242-3244(1997).
31. J.E.E. Baglin, A.J. Kellock, T.T. Bardin, T. Karis, and D. Keck, "Corrosion Protection of Cu, Fe, Mn, and Co Surfaces," *Mat. Res. Soc. Symp. Proc.*, vol. 517, pp. 421-426(1998).
32. T.E. Karis and H.S. Nagaraj, "Evaporation and Flow Properties of Several Hydrocarbon Oils," *Trib. Trans.*, 43(4)758-766(2000).
33. T.E. Karis, C. M. Seymour, R-N. Kono, M.S. Jhon, "Harmonic Analysis in Rheological Property Measurement," *Rheol. Acta.*, 41(5)471-474(2002).
34. T.E. Karis, C.A. Kim, M.S. Jhon, "Harmonic Analysis of a Solder Paste Under Large Amplitude Oscillatory Shear," *Macromol. Mater. Eng.*, 287,583-587(2002).
35. T.E. Karis, R-N. Kono, M.S. Jhon, "Harmonic Analysis in Grease Rheology," *J. Appl. Polym. Sci.*, 90, 334-343 (2003).
36. T.E. Karis, B. Marchon, D.A. Hopper, R. L. Siemens, "Perfluoropolyether Characterization by Nuclear Magnetic Resonance Spectroscopy and Gel Permeation Chromatography", *J. Fluor. Chem.*,118(1-2)81-94(2002).
37. T.E. Karis, M.D. Carter, "Oxidation Chemistry of Primary and Secondary Antioxidants," *Proceedings of WTC2005, World Tribology Congress III, September 12-16, Washington, DC.*

Magnetic Particle Suspensions

1. T.E. Karis, "Electronic Measurement of Single Domain Particle Concentration," *IEEE Trans. Magn.* MAG-22(5)665-667(1986).
2. T.E. Karis, and M.S. Jhon, "Flow-Induced Anisotropy in the Susceptibility of a Particle Suspension," *Proc. Natl. Acad. Sci. USA*, 83,4973-4977(1986).
3. T.E. Karis, and M.S. Jhon, "Analysis of Single-Domain Particle Flow Orientation Data," *J. Appl. Phys.* 64(10),5843-5845(1988).
4. M.S. Jhon, and T.E. Karis, "The Particulate Media for Magnetic Recording - Characterization Techniques for Particle Dispersion and Orientation," *ACS Symposium Series, Polymers in Information Storage Technology*, Ed. K.L. Mittal, Plenum Publishing Co. p.299-310, 1989.
5. T.E. Karis, "Rapid Determination of Coating Percent Pigment from Magnetic Recording Ink Density and Volume Fraction," *ACS Symposium Series, Polymers in Information Storage Technology*, Ed. K.L. Mittal, Plenum Publishing Co. p.421-429, 1989.

6. T.E. Karis, and M.S. Jhon, "Processing Effects on the Flow Orientation Properties of a Magnetic Particle Suspension," *Colloids and Surfaces*, 53,393-410(1991).
7. M.J. Shah, T.E. Karis, and G.M. Cuka, "The Effect of Dispersion Quality on Particulate Magnetic Recording Disk Properties," *AIChE J.*, 37(3)394-402(1991).
8. T.M. Kwon, M.S. Jhon, and T.E. Karis, "Concentration and Dispersion Quality Measurement for Ba-Ferrite Particle Suspensions," *J. Mag. Soc. of Japan*, 15, Supplement No. S2, 663-668(1991).
9. M.J. Shah, G.M. Cuka, and T.E. Karis, "Control of Particulate Magnetic Coating Properties Using Dispersion Quality Measurement," *IEEE Trans. on Instrumentation and Measurement*, 41(1)3-9(1992).
10. T.M. Kwon, M.S. Jhon, and T.E. Karis, "A Device for Measuring the Concentration and Dispersion Quality of Magnetic Particle Suspensions," *IEEE Trans. on Instrumentation and Measurement*, 41(1)10-16(1992).
11. M.S. Jhon, T.M. Kwon, and T.E. Karis, "Dispersion Quality of Rod-Like γFe_2O_3 , and CrO_2 and Plate-Like Ba-Ferrite Suspensions for Magnetic Recording," *Adv. Info. Storage Syst.*, 4,87-104(1992).
12. T.M. Kwon, M.S. Jhon, and T.E. Karis, "Rheomagnetic Measurements on Suspensions of Magnetic Recording Particles," *J. Appl. Phys.*, 72(8), 3770-3777(1992).
13. T.M. Kwon, M.S. Jhon, H.J. Choi, and T.E. Karis, "Rheomagnetic Properties of Mixed Magnetic Particle Suspension," *Colloids and Surfaces A: Physicochem. Eng. Aspects*, 80(1)39-46(1993).
14. M.S. Jhon, H.J. Choi, T.E. Karis, "Microrheological Study of Magnetic Particle Suspensions," *Ind. & Eng. Chem. Res.*,35(9)3027-3031(1996).