



**CURRICULUM VITAE**  
**KENNETH R. MORRIS**  
Long Island University  
College of Pharmacy  
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## **STATEMENT OF RESEARCH INTERESTS**

The majority of my research is in the emerging discipline of Pharmaceutical Material Science. This area can be described as the study of the impact of the physico-chemical properties of formulation components on the performance of the final pharmaceutical dosage form. These properties include: particle size, shape, surface area, and charge; crystal structure, lattice energy, forms (i.e.: polymorphs and hydrates), morphology; relative crystallinity (and amorphous content); hygroscopicity; and solubility. These properties affect powder flow, mixing, compaction, and physical stability, which, in turn, determine the dosage form performance. Changes in these critical properties that occur during processing can, therefore, alter dosage form performance. A focus of our research is the use of advanced analytical techniques to follow these properties throughout the manufacturing process. The techniques include: powder and single crystal x-ray diffraction, differential scanning calorimetry, thermal gravimetric analysis, mid and near diffuse reflectance Fourier transform infra-red spectrophotometry, dielectric spectroscopy, and molecular and crystallographic modeling.

## **EDUCATION**

Ph.D., University of Arizona, January 1988, in Pharmaceutics, thesis title; Solubility of aromatic compounds in mixed solvents.

M.S., University of Arizona, August 1986, in Pharmaceutical Chemistry, thesis title; The solubility of hydrophobic pollutants in water-cosolvent mixtures.

M.S. course work completed, University of Georgia, 1981-1984, in Physical Chemistry.

B.S., Eastern Michigan University, April 1978, dual major in Chemistry and Aquatic Biology.

## WORK EXPERIENCE

Director of the Lachman Institute for Pharmaceutical Analysis and University Professor, College of Pharmacy, LIU, Brooklyn, NY August 2015-

Professor and Chair- Pharmaceutical Science, College of Pharmacy; University of Hawaii at Hilo, HI 96720; 2011-2015

Professor - Pharmaceutical Science, College of Pharmacy; University of Hawaii at Hilo, HI 96720; 2008-2011

Professor (by courtesy) – Department of Chemical Engineering; Purdue University; West Lafayette, IN; 2005-present

Professor – Department of Industrial and Physical Pharmacy; Purdue University; West Lafayette, IN; 2002-2008.

Associate Department Head - Department of Industrial and Physical Pharmacy; Purdue University; West Lafayette, IN; 2001-2008.

Associate Professor - Department of Industrial and Physical Pharmacy; Purdue University; West Lafayette, IN; 1997-2002.

Principal Investigator - Head of Preformulation and Analytical Chemistry Groups; Bristol-Myers Products Research and Development; Hillside, New Jersey; 1995-1997.

Senior Research Investigator III - Head of Preformulation Group; Bristol-Myers Products Research and Development; Hillside, New Jersey; 1993-1995.

Senior Research Investigator II - Physical Pharmacy Group; Pharmaceutical Research and Development; Bristol-Myers Squibb Pharmaceutical Research Institute; New Brunswick, New Jersey; 1992-1993.

Senior Research Investigator I - Physical Pharmacy Group; Pharmaceutical Research and Development; SQUIBB Institute for Medical Research; New Brunswick, New Jersey; 1990-1992.

Adjunct Professor Rutgers University School of Pharmacy – 1990-97

Research Investigator - Physical Pharmacy Group; Pharmaceutical Research and Development; SQUIBB Institute for Medical Research; New Brunswick, New Jersey; 1988-1990.

Research Assistant - Pharmaceutical Sciences; University of Arizona; Tucson, Arizona; 1984-1987.

Associate Faculty- Pima Community College; Tucson, Arizona; 1986.

Chemist - U.S. Environmental Protection Agency; Athens, Georgia; 1979-1984.

Biological Technician - Great Lakes Research Vessels; U.S. Fish and Wildlife Service; Ann Arbor, Michigan; 1977-1979.

Teaching Assistant- Biochemistry Laboratory; Eastern Michigan University; Ypsilanti, Michigan; 1976-1977.

### **UHH COURSES CURRENTLY TAUGHT**

PHPS 505    Pharmaceuticals/Drug Action I  
PHPS 506    Pharmaceuticals/Drug Action II  
PHPS 755    Advanced Pharmaceuticals I  
PHPS 756    Advanced Pharmaceuticals II  
PHPS 511    Pharmacokinetics I

### **PRIMARY COURSES TAUGHT (Rutgers, Purdue)**

- Pharmaceutical Sciences Orientation, BSPS
- Pharmaceuticals, PharmD.
- Advanced Pharmaceuticals, Ph.D.
- Pharmaceutical Processes, BSPS, PharmD.
- Pharmaceutical Processes, Ph.D.
- Pharmaceutical Solids, Ph.D.
- Parenteral Products, selected topics, PharmD.
- GMP/QbD short courses, Industrial and FDA scientists
- Regulatory Science - PAT, executive MS
- Team teaching in Chemical Engineering processing courses

### **VISITING PROFESSOR**

Institute of Pharmacy; Department of Pharmaceutical Technology; University of Innsbruck; Innsbruck, Austria, Summer – 2000.

## GRADUATE STUDENTS AND POST-DOCS

### ***College of Pharmacy, Long Island University, Brooklyn***

Ph.D. Co-advisor/Advisor: Ting Xu, Harsh Shah, Rushaben Sardhara, 2015-present

### ***College of Pharmacy, University of Hawaii at Hilo***

Ph.D. Co-advisor: Susanne Youngren, Micah Glasgow, 2011-present

### ***College of Pharmacy, Rutgers University***

Co-advisor (as adjunct professor) for two successful Ph.D. students. (1990-1997).

### ***School of Pharmacy and Pharmaceutical Science, Purdue University***

Sumana Peneumetcha, Assessing The Contribution Of Secondary Relaxation Processes In Acrylate Polymers To Permeate Diffusion, July 2010

Xiahong Sheng, Drug Dissolution from Pregelatinized Corn Starch Capsules. April 2008

Dave Engers, Microstructure Evolution and the Physical Stability of Amorphous Materials. October 2007

Jeff Tan, Core-shell Potential-Derived Charges: A Detailed Analysis for Pharmaceutical Materials Science. August 2007.

José Pérez-Ramos, Monitoring and modeling of film coating in a side vented pan coater using near-infrared reflectance spectroscopy, digital video imaging and computational methods. 2007

Abhay Gupta, Co-advised by Stephen R. Byrn, Ph.D. Enhancement of Pharmaceutical Solids by Engineered Plasticization. December, 2004.

Peter Wildfong. Towards an Understanding of Mechanically Activated Solid State Phase Transformations in Small Molecular Organic Crystals. December, 2004.

Paul Findlay. Near Infra-Red Spectroscopic Monitoring Fluidized Bed Granulation: Process and Control of Granule Strength. August, 2003.

Wenjin Cao, Phase Transformations under Compression. August 2002.

Lori Hilden, Prediction of the Relaxation Behavior of Amorphous Pharmaceutical Compounds: Master Curves Concept and Practice. August 2002.

Jennifer Wang, Modeling of Adhesion in Tablet Compression. May 2002.

Mingda Bi, Mechanism and Characterization of Eutectic Formation Upon. Compaction and Its Effects on Tablet Properties. May 2002.

Carlos Ufret – PAT in Pharmaceutical Development, M.S., 1999

Tonglei Li, Fractal Analysis of Surface Roughness and Study of Etching Mechanism of Acetaminophen Single Crystals. May 1999

Noemi Guma, Investigation of Film curing by Dielectric Analysis. 1997

Sean A. Evans, Dielectric Characterization of Model Frozen Systems Intended for Lyophilization. April 1991.

**Advisory Committee Member** for twelve (15) other graduate students  
*Post-doctoral Research Associates (co-advised ~10) sole advisees:*

Rahul Haware doctoral fellow 2010-2011

Shantha Amarashinge post doctoral fellow 2008-2009

Stephan Boerrigter post doctoral fellow 2003-2008

Jon Hilden, post doctoral fellow 2001-2002

Tonglei Li, post doctoral fellow 2000-2001

Ulrich Griesser, post doctoral fellow 1998-1999

James Hwang, post doctoral fellow 1997-1998

## **SCHOOL AND UNIVERSITY COMMITTEES**

Chair – UHH Under Graduate Engineering Program Advisory committee

Chair - University Graduate Council – UHH

TPRC – tenure and promotion committee UHH

SPGC – student promotion and graduation committee UHH

Chair of multiple search committees – UHH

Numerous committees at Purdue University

## **MEMBERSHIPS**

American Association of Pharmaceutical Scientists  
American Crystallographic Association  
American Chemical Society  
American Institute of Chemical Engineers

## **NATIONAL OFFICES AND APPOINTMENTS**

Member of FDA Pharmaceutical Science and Clinical Pharmacology Advisory Committee in the Office of Pharmaceutical Quality (ACOMS), 2018-present.

Past Chair and member of FDA Advisory Committee for Pharmaceutical Sciences in the Office of Pharmaceutical Science (ACPS-OPS), 2004~2015.

Member of FDA ACPS-OPS Manufacturing Subcommittee of the Advisory Committee for Pharmaceutical Science, 2004.

Chair of Raw Materials Committee (E5502) for American Society for Testing and Materials, 2004-2005.

Special Government Employee of FDA (Advisor on issues of pharmaceutical development), 2004-present.

Member of FDA Process Analytical Technologies Subcommittee of the Advisory Committee for Pharmaceutical Science, 2002-2004.

Participant on FDA ACPS-OPS, 2001-2003.

Member of AAPS-FDA PQRI Bulk Drug Particle Size and Particle Characteristics Committee, 2000-2002.

Member of ad hoc National Cancer Institute Grant Review Committee, Bethesda MD, 1989.

## **AWARDS AND HONORS**

2012 UHH-CoP Class of 2013 Pharmaceutical Science Teacher of the year

2010 Professional Achievement University of Arizona College of Pharmacy.

2009 UHH-CoP Class of 2012 Pharmaceutical Science Teacher of the year

2007 AAPS Fellow. Awards ceremony scheduled for November 11, 2007 at the AAPS Annual Meeting & Exposition in San Diego, CA.

November, 2006 AAPS Outstanding Manuscript Award in Analysis and Pharmaceutical Quality for: Quantitative determination of polymorphic composition in intact compacts by parallel-beam X-ray powder diffractometry II. Data correction for analysis of phase transformations as a function of pressure.

2006 Best Paper Prize on Informatics, *International Journal of Computers and Chemical Engineering*, 2006

Sept. 2, 2004, Golden Acorn Award winner for Center of Excellence for the Institute for advanced Pharmaceutical Technology

2000-2002 - Purdue Research Foundation Grant Award: Study of eutectic formation on compaction.

1996/1997 Presidents Award, Bristol Myers Products R&D.

1994 Fred Simon Award for Best Paper in the PDA *Journal of Pharmaceutical Science and Technology* for: A prediction of lyophile collapse temperature by dielectric analysis.

EPA Research Paper of the Year for S. W. Karickhoff and K. R. Morris, Impact of tubificid oligochaetes on pollutant transport in bottom sediments, 1987.

Outstanding Research Award, Environmental Protection Agency Environmental Research Laboratory, 1983.

## **PATENTS**

Methods of searching for solid forms and screening a sample according to its forms - with SSCI Inc. U.S. Patent 7,041,169 issued 5-9-06

## **EDITORIAL AND REVIEWING ACTIVITIES**

Guest Editor *AAPS PharmSciTech*, Theme: Team Science and Education for Pharmaceuticals: the NIPTE Model. 2019

Member Editorial Board of the *Journal of Molecular Pharmaceutics*.

Former Member Editorial Board of the *Journal of Pharm. Sciences*.

Reviewer for *Journal of Pharmaceutical Sciences*.

Reviewer for *Pharmaceutical Research*.

Reviewer for *Crystal Growth and Design*.

Reviewer for *Journal of Pharmaceutical Technology Today*.

## **PROFESSIONAL SOCIETY ACTIVITIES**

Leadership Team and Fellows Committee Chair, AAPS MSE section 2012-present

AAPS Fellows committee 2012-present

Member and chair AAPS PDD Awards Committee 2009-2010.

Member Planning Committee "AAPS Annual Pharmaceutical Technologies Conference at Arden House January 2004.

Member Planning Committee "AAPS Annual Pharmaceutical Technologies Conference at Arden House January 2003

Member Planning Committee "AAPS Conference on Pharmaceutics and Drug Delivery" April, 2002

Participant in AAPS Undergraduate Roundtable and AAPS Education Committee.

Member Program Committee for AAPS Annual Meeting 2002.

Chair AAPS PDD Awards Committee 2001-2002.

Joint FDA-IND workshop on Polymorphs in Pharmaceutics.

## **Book Chapters**

1. Peter L.D. Wildfong, Rahul Haware, Ting Xu, and Kenneth R. Morris, "Processing of Organic Crystals" in *Pharmaceutical Crystals: Science and Engineering*, ed, Tongli Li, John Wiley & Sons, Inc., in press.
2. K. Morris, R. McCann, "Concepts in Quality by Design for Drug Development and Manufacture" *Pre-approval Inspections*, Ch. 7, *Drugs and the Pharmaceutical Sciences series Vol. 181*, Dekker, 2<sup>nd</sup> Ed, 2008.



3. F. Muzzio, K.R. Morris, J.L.P. Soh, R.J. McCann, "General Issues in the Scale-up of Solid Oral Dosage Form Manufacturing", *Pharmaceutical Dosage Forms*, ED. Hoag and Augsburger, Marcel Dekker, 3<sup>rd</sup> Ed. 2008.
4. G.E. Peck, J. L. P. Soh, K.R. Morris "Dry Granulation", *Pharmaceutical Dosage Forms*, ED. Hoag and Augsburger, Marcel Dekker, 3<sup>rd</sup> Ed. 2008.
5. S.M. Carl, D.L. Lindley, G.T. Knipp, K.R. Morris, E. Oliver, G.W. Becker and R.A. Arnold. *Biotechnology Drug Product Development. Pharmaceutical Manufacturing Handbook*, Editor S.H. Gad, John Wiley & Sons, New York, NY, Ch. 1.1, 2008.
6. E. Oliver, S.M. Carl, K.R. Morris, G.W. Becker and G.T. Knipp. *Regulatory Considerations in the Approval of Follow-On Protein Drug Products. Pharmaceutical Manufacturing Handbook*, John Wiley & Sons, New York, NY, Ch. 1.2, 2008.
7. Gregory Knipp and Ken Morris, States of Matter, Ch.2 in *Martin's Physical Pharmacy and Pharmaceutical Sciences*, 5<sup>th</sup> Ed. 2006.

## PUBLICATIONS

1. Ajaz Hussain, Vadim Gurvich, Kenneth Morris, White Paper, *Pharmaceutical New Prior Knowledge: Twenty-First Century Assurance of Therapeutic Equivalence*, *AAPS PharmSciTech* (2019) 20:140
2. Harsh S. Shah, Kaushalendra Chaturvedi, Mazen Hamad, Simon Bates, Ajaz Hussain, and Kenneth Morris, *New Insights on Solid-State Changes in the Levothyroxine Sodium Pentahydrate during Dehydration and its Relationship to Chemical Instability*, *AAPS PharmSciTech* (2019) 20:39
3. T. Joshi, A. B. Singaraju, H.S. Shah, K.R. Morris, L.L. Stevens, R.V. Haware, *Structure-Mechanics and Compressibility Profile Study of Flufenamic acid: Nicotinamide Cocrystal (2018)*, *Crystal Grow. Des.*, DOI:10.1021/acs.cgd.8b00534
4. A. Jain, H.S. Shah, P.R. Johnson, A. Narang, K.R. Morris, R.V. Haware, (2018), *Crystal Anisotropy Measurements to Decipher Structure-Mechanics Impact on Tableting Performance of Flufenamic Acid Polymorphs (2018)*, *Eur. J. Pharm. Biopharm.*, 132, 83-92
5. Ting Xu, Kajal Nahar, Rutesh Dave, Simon Bates, Kenneth Morris, *Polymorphic Transformation of Indomethacin during Hot Melt Extrusion Granulation: Process and Dissolution Control*, *Pharm Res*, 2018 May 10;35(7)

6. G. Joglekar, Q. Cai, P. DeLaurentis, L. Mockus, K. Morris, G. V. Reklaitis, A Workflow-Based Framework for Curating Product Analytical Data and Statistical Results for Lot Release, *Journal of Pharmaceutical Innovation*, <https://doi.org/10.1007/s12247-018-9310-8>
7. Radaduen Tinmaneea, Sarah C. Larsenb, Kenneth R. Morris, Lee E. Kirsch, “Quantification of gabapentin polymorphs in gabapentin/excipient mixtures using solid state <sup>13</sup>C NMR spectroscopy and X-ray powder diffraction”, *Journal of Pharmaceutical and Biomedical Analysis*, 2017 Nov 30;146:29-36
8. Michael D. Clark, Kenneth R. Morris, and Maria Silvina Tomassone, “Correlation of Solubility with the Metastable Limit of Nucleation 2 Using Gauge-Cell Monte Carlo Simulations”, *LANGMUIR*, 2017 Sep 12;33(36):9081-9090
9. Youngren-Ortiz, S.R., Hill, D.B., Hoffmann, P.R., Morris, K.R., Barrett, E.G., Forest, M.G., Chougule, M.B. “Development of Optimized, Inhalable, Gemcitabine-Loaded Gelatin Nanocarriers for Lung Cancer”, *Journal of Aerosol Medicine and Pulmonary Drug Delivery*, doi: 10.1089/jamp.2015.1286, March 2017
10. Kondratyuk, T. P., Adrian, J. A. L., Wright, B., Park, E.-J., van Breemen, R. B., Morris, K. R., & Pezzuto, J. M. (2016). “Evidence supporting the conceptual framework of cancer chemoprevention in canines”, *Scientific Reports*, 6, 26500. <http://doi.org/10.1038/srep26500>, May 2016
11. Braun, D.E., Nartowski, K.P., Khimyak, Y.Z, Morris, K.R., Byrn, S.R., Griesser, U.J. “Structural Properties, Order-Disorder Phenomena, and Phase Stability of Orotic Acid Crystal Forms”, *Mol. Pharmaceutics*, 13 (3), pp 1012-1029 DOI: 10.1021/acs.molpharmaceut.5b00856 Jan. 2016
12. Dave, V.S., Chanda, M. Sayles, M. Popielarczyk, M., Boyce, H., Bompelliwar, S.K., Bates, S., Morris, K.R., Haware, R.V., “ Correlation of Structural and Macroscopic Properties of Starches with Their Tabletability Using the SM<sup>2</sup> Approach”, *Journal of Pharmaceutical Sciences* Vol. 104 (11), pp. 3870-3882 DOI: 10.1002/jps.24601 July 2015
13. Hamad, ML, Engen, W. Morris, K.R., “Impact of hydration state and molecular oxygen on the chemical stability of levothyroxine sodium”, *Pharmaceutical Development and Technology* Vol. 20 iss. 3 pgs.314-319 DOI: 10.3109/10837450.2013.862635 May 2015

14. Penumetcha, S. and Morris K.R., "Relaxation Kinetic Study of Eudragit® NM30D Film Based on Complex Modulus Formalism", *AAPS PharmSciTech*, January 2015. DOI: 10.1208/s12249-015-0289-x
15. Boersen, N, Carvajal, M.T., Morris, KR, Peck, GE, Pinal, R., "The influence of API concentration on the roller compaction process: modeling and prediction of the post compacted ribbon, granule and tablet properties using multivariate data analysis", *Drug development and industrial pharmacy; Informa healthcare* pgs. 1-9, DOI: 10.3109/03639045.2014.958754 Sept. 2014
16. Susarla, R, Sievens-Figueroa, L, Bhakay, A, Shen, YY, Jerez-Rozo, JI, Engen, W, Khusid, B, Bilgili, E, Romañach, RJ, Morris, KR\*, Michniak-Kohn, B., Dave, RN, "Fast drying of biocompatible polymer films loaded with poorly water-soluble drug nano-particles via low temperature forced convection", *International Journal of Pharmaceutics*, Vol. 455, Iss. 1-2, pgs. 93-103, DOI: 10.1016/j.ijpharm.2013.01.051 Oct. 2013.
17. Youngren SR, Mulik R, Jun B, Hoffmann PR, Morris KR, Chougule MB., "Freeze-Dried Targeted Mannosylated Selenium-Loaded Nanoliposomes: Development and Evaluation", *AAPS PHARMSCITECH*, Vol. 14 Iss. 3, pgs. 1012-1024, DOI: 10.1208/s12249-013-9988-3 SEP 2013.
18. Jeffrey S. Tan, Stephan X.M. Boerrigter, Raymond P. Scaringe, Kenneth R. Morris\*, "Core-Shell Potential-Derived Point Charges", *Journal of Computational Chemistry*, 33(9), pages 950-957 DOI 10.1002/jcc.22920 April 5, 2012
19. Daniel Hu, Rahul V. Haware, Mazen L. Hamad, Kenneth R. Morris\*, "Characterization of Critical Physical and Mechanical Properties of Freeze-Dried Freeze Dried Grape Powder for Development of a Clinical Patient Delivery System", *Journal of Nutrition*, Pharm Dev Technol online Feb 15, 2012.
20. Rahul V. Haware, Patrick R. Wright, Kenneth R. Morris, Mazen L. Hamad, "Data fusion of Fourier transform infrared spectral and powder X-ray diffraction patterns for pharmaceutical mixtures", *Journal of Pharmaceutical and Biomedical Analysis*, 56, pgs 944-949, DOI: 10.1016/j.jpba.2011.08.018. Dec. 15, 2011.
21. Rahul V. Haware, Paul Kim, Lauren Ruffino, Brian Nimi, Catherine Fadrowsky, Michael Doyle, Stephan X.M. Boerrigter, Alberto Cuitino, Ken Morris\*, "Anisotropic Crystal Deformation Measurements Determined using Powder X-Ray Diffraction and a New *in situ* Compression Stage", *International Journal of Pharmaceutics*, special issue on predictive

- methods in *Pharmaceutical development*, 418(2) pgs. 199-206 (14 October 2011).
22. Bruno C. Hancock, Kenneth R. Morris\*, Peter L.D. Wildfong, "A priori Performance Predictions in the Pharmaceutical Sciences", *International Journal of Pharmaceutics*, 418(2), pgs. 149-150. Oct. 14, 2011.
  23. Mazen L. Hamada, Keith Bowman, Nathan Smith, Xiaohong Sheng, Abhay Gupta, and Kenneth R. Morris, "Multi-Scale Pharmaceutical Process Understanding: from Particle to Powder to Dosage Form", *Chemical Engineering Science*, special issue entitled "Pharmaceutical Engineering Science – A Key for Tomorrow's Drug", 65(21) Sp. Iss. SI p. 5625-5638, NOV 1 2010.
  24. Hui, Li, Joseph G. Stowell, Kenneth R. Morris, Stephen R. Byrn, "Crystal Quality and Physical Reactivity in the Case of Flufenamic Acid (FFA)", *J. Pharm. Sci.*, 99(9) Pages 3839-3848 DOI: 10.1002/jps.22221 SEP 2010.
  25. Jennifer Wang, Martha Davidovich, Devikant Desai, D Bu, M. Hussain, and Kenneth R. Morris, "Solid State Interactions of a Drug Substance and Excipients and their Impact on Tablet Dissolution: A Thermal-Mechanical Facilitated Processed-Induced Transformation or PIT", *Journal of Pharmaceutical Sciences*, 99(9): 3849-3862 SEP 2010.
  26. Jun-Dong Park, Mi-Lim Ou, Kenneth R. Morris, Mathew R. Schwaller, "Comparisons of Rain Rate and Reflectivity between TRMM Precipitation Radar and Gosan S-Band Radar", *2010 IEEE International Geoscience and Remote Sensing Symposium Book Series: IEEE International Symposium on Geoscience and Remote Sensing IGARSS*, pgs. 4698-4700, DOI: 10.1109/IGARSS.2010.5649965, Published 2010.
  27. Xiaoming Chen, Joseph G. Stowell, Kenneth R. Morris, Stephen R. Byrn, "Quantitative study of solid-state acid–base reactions between polymorphs of flufenamic acid and magnesium oxide using X-ray powder diffraction", *J. Pharm. and Biomed. Analysis*, 5(4) pages 866-874 March 11, 2010, DOI: 10.1016/j.jpba.2009.09.021.
  28. Joshi, Vidya, Morris, Kenneth R., Byrn, Stephen R., Carvajal, M. Teresa, "Evaluation of the Use of E-a (Activation Energy) as a Quantitative Indicator of Physical Stability of Indomethacin Solvates: Methanolate and Tertiary Butyl Alcohol Solvate", *Crystal Growth & Design*, 9(8): 3359-3366 Aug 2009.
  29. John M. Pezzuto, Venkat Venkatasubramanian, Mazen Hamad, and Kenneth R. Morris, "Unraveling the Relationship between Grapes and Health", *J. Nutrition*, on-line 7/22/2009, 139(9) pgs. 1783S-1787S DOI: 10.3945/jn.109.107458.

30. Tan, Jeffrey S., Boerrigter, Stephan X.M., Scaringe, Raymond P., Morris, Kenneth R., "Application of Error-Ranked Singular Value Decomposition for the Determination of Potential-Derived Atomic-Centered Point Charges", *Journal of Computational Chemistry*,30(5):733-742 4-15- 2009.
31. Hilden, Jon, Bowman, Keith, Morris, Ken, Wang, Steve, Sprockel, Omar, Ennis, Bryan, "Note on the Interpretation of powder shear test data", *Powder Technology* (2008), 182, 486-492.
32. Hailemariam, L., Suresh, P., Akkisetty, V. P. K., Joglekar, G., Hsu, S-H., Jain, A., Morris, K., Reklaitis, G. V., Basu, P., and Venkatasubramanian, V. "Excipient Interaction Prediction: Application of the Purdue Ontology for Pharmaceutical Engineering (POPE)". In B. Braunschweig and X. Joulia (ed.), 18th European Symposium on Computer Aided Process Engineering, *Computer Aided Chemical Engineering Series*, 23, 85-90. Elsevier, Amsterdam (2008).
33. Wen, Hong, Morris, Kenneth R., Park, Kinam, "Synergic Effects of Polymeric Additives on Dissolution and Crystallization of Acetaminophen", *Pharmaceutical Research* (2008), 25(2), 349-358.
34. Soh, Josephine, L.P., Boersen, Nathan, Carvajal, M. Teresa, Morris, Kenneth R., Peck, Garnet E., Pinal, Rodolfo, "Importance of Raw Material Attributes for Modeling Ribbon and Granule Properties in Roller Compaction: Multivariate Analysis on Roll Gap and NIR Spectral Slope as Process Critical Parameters" *J. Pharm. Innovation* (2007), 2(3-4),106-124.
31. Engers, David A., Fricke, Molly N., Newman, Ann W., Morris, Kenneth R., "Triboelectric charging and dielectric properties of pharmaceutically relevant mixtures" *Journal of Electrostatics* (2007), 95(12), 2645-2656.
32. Wildfong, P.L., Morris K.R., Anderson, C.A., Short, S.M. "Demonstration of a shear-based solid-state phase transformation in a small molecular organic system: chlorpropamide" *J. Pharm. Sci.* (2007), 96(5):1100-13.
33. Li H, Stowell, J.G., He, X., Morris, K.R., Byrn, S.R., "Investigations on solid-solid phase transformation of 5-methyl-2-[(4-methyl-2-nitrophenyl) amino]-3-thiophenecarbonitrile" *J. Pharm. Sci.* (2007), 96(5):1079-89.
34. Wildfong, P.L., Hancock, B.C., Moore, M.D., Morris, K.R., "Towards an understanding of the structurally based potential for mechanically activated disordering of small molecule organic crystals" *J. Pharm. Sci.* (2006) 95(12):2645-56.

35. Hlinak, A.J., Kuriyan K., Morris, K.R., Reklaitis, G.V., Basu P.K.,  
"Understanding critical material properties for solid dosage form design"  
*Journal of Pharmaceutical Innovation* 2006, 1, 12-18 (2006).
36. Engers, David A., Fricke, Molly N., Storey, Ryan P., Newman, Ann W.,  
Morris, Kenneth R., "Triboelectrification of pharmaceutically relevant  
powders during low-shear tumble blending" *Journal of Electrostatics* (2006),  
64, 826-835.
37. Romero-Torres, Saly; Perez-Ramos, Jose; Morris, Kenneth R.; Grant,  
Edward R., "Raman spectroscopy for tablet coating thickness quantification  
and coating characterization in the presence of strong fluorescent  
interference" *Journal of Pharmaceutical and Biomedical Analysis* (2006),  
41(3), 811-819.
38. Miller, Ronald W.; Gupta, Abhay; Morris, K.R.; "Roller compaction scale-up"  
*Drugs and the Pharmaceutical Sciences* (2006), 157(Pharmaceutical  
Process Scale-Up (2<sup>nd</sup> Edition). 237-266.
39. Venkatasubramanian, Venkat, Zhao, Chunhua, Joglekar, Girish, Jain,  
Ankur, Hailemariam, Leaelaf, Suresh, Pradeep, Akkisetty, Pavankumar,  
Morris, Kenneth, Reklaitis, G.V., "Ontological informatics infrastructure for  
pharmaceutical product development and manufacturing", *Computers &  
Chemical Engineering* (2006), 30(10-12), 1482-1496.
40. C.-H Zhao, A. Jain, L. Hailemariam, P. Suresh, P. Akkisetty, G. Joglekar, V.  
Venkatasubramanian, G.V.Reklaitis, K. Morris, P. Basu, "Towards Intelligent  
Decision Support for Pharmaceutical Product Development", *J. of Pharm.  
Innovation*, 1(1), pp.23-36 (2006).
41. Bates, Simon, Zografis, George, Engers, David, Morris, Kenneth, Crowley,  
Kieran, Newman, Ann, "Analysis of Amorphous and Nanocrystalline Solids  
from Their X-Ray Diffraction Patterns", *Pharmaceutical Research* (2006),  
23(10), 2333-2349.
42. Morris, K.R., Venugopal, S., Eckstut, M., "Making the Most of Drug  
Development Data" *Pharmaceutical Manufacturing* (2005) Published online  
at [www.pharmamanufacturing.com](http://www.pharmamanufacturing.com) .
43. Qiu, Z., Stowell, J.G., Cao, W, Morris, K.R., Byrn, S.R. and Carvajal, M.T.  
"Effect of Milling on the Solid-state Maillard Reaction". *Journal of  
Pharmaceutical Sciences*. (2005) 94(11):2568-2580. Published online  
*Journal of Pharmaceutical Sciences* (November 2005).

44. Soto, Jessika Colon; Meza, Carlos Peroza; Caraballo, Wanda; Conde, Carlos; Li, Tonglei; Morris, Kenneth R.; Romanach, Rodolfo J., "On line non-destructive determination of drug content in moving tablets using near infrared spectroscopy" *PAT—The Journal of Process Analytical Technology* (2005), 2(5), 8-15.
45. Mao, C., Pinal, R. and Morris, K. R., "A Quantitative Model to Evaluate Solubility Relationship of Polymorphs from Their Thermal Properties" *Pharmaceutical Research* (2005), 22(7), 1149-1157 Published online *Pharmaceutical Research* (22 July, 2005).
46. Gupta, A., Peck, G. E., Miller, R. W. and Morris, K., "Influence of the ambient moisture on the compaction behavior of microcrystalline powder undergoing uni-axial compression and roller –compaction: a comparative study using NIR spectroscopy". *J. Pharm. Sci.* (2005), 94(10), 2301-13.
47. Gupta, A., Peck, G. E., Miller, R. W. and Morris, K., "Effect of the variation in the ambient moisture on the compaction behavior of powder undergoing roller compaction and on the characteristics of tablets produced from the post-milled granules". *J. Pharm. Sci.* (2005), 94(10), 2314-2326.
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#### **PRESENTATIONS** (selected - other than teaching)

1. Analytical Method Development and Validation for Dissolution Testing of Ibuprofen and Ketoconazole IR tablets in Fed State Simulated Gastric Fluid (FeSSGF) Medium. Harsh Shah, Kajal Nahar, Rusha Sardhara, Ting Xu, Poonam Delvadia, Akhtar Siddiqui, Zongming Gao, Arzu Selen, Kenneth Morris. Poster Number: M1430-07-054, AAPS DC; November 5th, 2018.
2. Structure -Mechanics Study of Cocrystal to Optimize Tablet Size. Jayshil Bhatt, Harsh Shah, Pratap Basim, Kenneth Morris, Rahul Haware. Poster Number: M0930-10-074, AAPS DC; November 5th, 2018.
3. Contribution of Crystal Lattice Energy to the Dissolution Behavior of Eutectic Solid Dispersion, Kaushalendra Chaturvedi, Harsh Shah, Kajal Nahar, Rutesh Dave, Kenneth Morris. Late Breaking ID# 540916, AAPS DC. 2018.
4. Estimating the intrinsic solubility of metastable form of drugs using modified Nogami method, Kajal Nahar, Harsh Shah, Ting Xu, Kaushalendra Chaturvedi, Kenneth Morris. Late Breaking, AAPS DC. 2018.
5. Comparison of solubility and dissolution behavior of ibuprofen and ketoconazole in Fed State Simulated Intestinal Fluid and USP buffer. Rusha Sardhara, Harsh Shah, Ting Xu, Poonam Delvadia, Akhtar

Siddiqui, Zongming Gao, Arzu Selen, Kenneth Morris. Late Breaking, AAPS DC. 2018.

6. Process design and optimization of Clotrimazole nanosuspension drying by Hot melt extrusion: B. Y. Gajera, K. R. Morris, D. A. Shah, R. H. Dave, San Diego, November 13th, 2017 (4:00 pm-5:00 pm), poster Number M8089
7. Comparison of dissolution behavior of ketoconazole and ibuprofen tablets in united states pharmacopeia (USP) and non-Compendial Biorelevant Dissolution Media: K. Nahar, H. Shah, R. Sardhara, T. Xu, A. Selen, A. Siddiqui, S. P. Balguri, Z. Gao, P. Delvadia, L. Bushe, K. R. Morris, San Diego, November 13th, 2017 (3:00 pm-4:00 pm), poster Number M7010
8. Monitoring solid state transition of drug products during dissolution in biorelevant media, case studies: Ibuprofen, ketoconazole and Indomethacin: H. Shah, K. Nahar, R. Sardhara, T. Xu, A. Siddiqui, P. Delvadia, Z. Gao, S. P. Balguri, A. Selen, K. R. Morris, San Diego, November 14th, 2017 (9:00 am-10:00 am), poster Number T1021
9. Effect of Operational Changes and data analysis variables on dissolution testing using Symphony 7100/opt-Diss 410: H. Shah, K. Chaturvedi, R. Khalil, L. Mockus, L. Buhse, T. Goen, K. R. Morris, San Diego, November 13th, 2017 (2:00 pm-3:00 pm), poster Number M6001
10. Method development and validation scheme for in-situ fiber optic probe/bathless dissolution system for a pharmaceutical drug testing: K. Chaturvedi, H. Shah, R. Sardhara, K. Nahar, Q. Cai, G. Reklaitis, L. Buhse, T. Goen, K. R. Morris, San Diego, November 13th, 2017 (3:00 pm-4:00 pm), poster Number M7009
11. Solubility studies and solid state analysis of Ibuprofen and Ketoconazole in the Biorelevant Media: R. Sardhara, K. R. Morris, San Diego, November 14th, 2017 (4:00 pm-5:00 pm), poster Number T8032
12. Process-Induced Phase Transformation of Indomethacin during the Melt Granulation process on Hot Melt Extruder: T. Xu, K. R. Morris, R. H. Dave, San Diego, November 14th, 2017 (4:00 pm-5:00 pm), poster Number T8011
13. 14. A Workflow-Based Framework for Managing Product Analytical Data and Statistical Results for Lot Release: Girish Joglekar, Qing Cai, Poching DeLaurentis, Linas Mockus, Kenneth Morris and Gintaras V. Reklaitis, Minneapolis, Thursday, November 2, 2017: 8:00 AM-10:30 AM, Abstract Number: 493687

14. Presentation at New Jersey Pharmaceutical Association for Science and Technology (NJPhAST) in New Jersey, 2017
15. The Influence of Molecular Anisotropy on the Structure and Structural Relaxation in Amorphous Solids, Ken Morris, 58TH Annual International Industrial Pharmaceutical Research & Development Conference, JUNE 2016 LAND O'LAKES CONFERENCE
16. Wang, X.; Utukuri, A.; Guendisch, D.; Macpherson, R.; Morris, K., Eutectic Formation as an Indicator of Amorphization on Wet Granulation and Potential Degradation, 2013 American Association of Pharmaceutical Scientists Annual Meeting, San Antonio, TX, November 10-14, 2013, Poster # M1264.
17. Engen W., Morris K., Hamad M. Impact of hydration state on levothyroxine sodium chemical stability (Poster). American Society of Health System Pharmacist (ASHP) 2011 Midyear Clinical Meeting, New Orleans, LA; presented December 5, 2011
18. Daniel Hu, Anthony D. Wright , S.Amarasinghe, Ken Morris, CHARACTERIZATION OF PHYSICAL AND MICROMERITIC PROPERTIES OF FREEZE-DRIED GRAPE POWDERS, ASP, Honolulu, 2009
19. IEEE International Geo-Science and Remote Sensing Symposium, Honolulu, HI June 25-30, 2010
20. "Predicting the Enthalpy of Fusion for a Thermally Labile Compound Through the Formation of a Eutectic Mixture", AAPS Annual Meeting and Exposition, Los Angeles, CA, November 11, 2009.
21. "Investigating Primary and Secondary Relaxations in Tablet Coating Polymers and Their Influence on Diffusion Across the Polymers, AAPS Annual Meeting and Exposition, Los Angeles, CA, November 10, 2009.
22. "Drug Dissolution from Pre-gelatinized Corn Starch Capsules", K.R. Morris, Invited Speaker, AAPS Annual Meeting and Exposition, Los Angeles, CA, November 9, 2009.
23. "Effect of Degree of Crystallinity of Pre-gelatinized Corn Starch on Drug Release", American Society of Pharmacognosy, 50<sup>th</sup> Anniversary Meeting, Honolulu, HI, June 27-July 1, 2009.
24. Characterization of Physical and Micromeritic Properties of Freeze-Dried Grape Powders", American Society of Pharmacognosy, 50<sup>th</sup> Anniversary Meeting, Honolulu, HI, June 27-July 1, 2009.



25. "Selection & Use of Pharmaceutical Powder Properties to Design Product Quality", K.R. Morris, Invited Speaker, AAPS Annual Meeting & Exposition, San Diego, CA. November 15, 2007.
26. "Quality by Design: Current Status/Future Prospects", K.R. Morris, Invited Speaker, Particle Technology & Crystallization Consortium (PTCC) Semi-Annual Meeting, Illinois Institute of Technology, October 24, 2007.
27. "The Use of PAT in Drug Development Processes", K.R. Morris, Invited Speaker for The British Pharmaceutical Conference and Exhibition (BPS), Manchester, England. September 11, 2007.
28. "Quality by Design, Roller Compaction, and Amorphisation," K.R. Morris, Invited Speaker, AstraZeneca, Macclesfield Cheshire SK10 2NA England. September 7, 2007.
29. "Pharmaceutical Solids" K.R. Morris, Invited Speaker, Short Course given at University of Arizona, Tucson, AZ. August 30-September 1, 2007.
30. "Basic Pharmaceutics," K.R. Morris, Invited Lecturer, Short Course given at Mylan Labs, Morgantown, W.V. June 21-22,, 2007
31. "Manufacturing Science: Material & Process Knowledge, Education PAT/Validation/Design & Development/Specifications/Standards", K.R. Morris invited Speaker, An FDA/Industry Workshop-Pharmaceutical Quality Systems, Parsippany, N.J. June 26-27, 2007
32. "Quality by Design" K.R. Morris, Invited Lecturer, talk modified for Process Chemists, R&D, and Quality Control employees at Gynzyme, Waltham, MA. June 6-7, 2007
33. "Solid Oral Dose Form Unit Operations," K.R. Morris, Invited Lecturer for Training Course at the FDA, Silver Springs, MD. May 6-7, 2007.
34. "Solubility & Solubilization of Drugs," K.R. Morris, Invited Lecturer Short Course given in conjunction with the Univ. of Arizona, Tucson, AZ. April 22-26, 2007.
35. "Challenges to the Pharmaceutical Industry," K.R. Morris, Invited talk, Bayer Technology, Shanghai, China. April 15-22, 2007.
36. "Quality by Design," K.R. Morris, Invited Lecturer for workshop given to FDA/CDER members, Washington, DC February 8, 2007, January 17-19, 2007, and January 11, 2007.

37. "Implementing QbD: What We Already Have and What We Need," K.M. Morris, Invited Lecturer for AAPS Annual Meeting, San Antonio, TX. October 31, 2006.
38. "Quality by Design," K.R. Morris, Invited Lecturer, FDA seminar, Dept. of CVM, Rockville, MD. October 2, 2006.
39. "Quality by Design," K.R. Morris, Short course given to Glaxo Smith Kline employees, Purdue University campus. October 2006. August 2006.
40. "The State of Information Management in Pharmaceutical Development," K.R. Morris, Invited Lecturer, Keynote speaker, BioProcess International Analytical Summit, Reston, VA. July 17-19, 2006.
41. "Inter-tablet coating variability in a horizontal axis pan coater ", A. Kalbag, J. Perez-Ramos, K. Morris and Carl Wassgren. AAPS Annual meeting, San Antonio, TX. Oct. 28- Nov. 2, 2006.
42. "Core-Shell Equilibration Charges – Reproducing and Responding to a Dynamic Molecular Electronic Environment", K. Morris, J. Tan and R. Scaringe. AAPS Annual meeting, San Antonio, TX. Oct. 28- Nov. 2, 2006.
43. "Core-Shell Potential Derived Charges – A Detailed Analysis", K. Morris, J. Tan and R. Scaringe. AAPS Annual meeting, San Antonio, TX. Oct. 28- Nov. 2, 2006.
44. "Evaluation of degree of gelatinization of corn starches by an enzymatic method," J. BeMiller, S. Nail, K. Morris and X. Sheng. AAPS Annual meeting, San Antonio, TX. Oct. 28- Nov. 2, 2006.
45. "A Decision Support System for Pharmaceutical Product Formulation", P. Akkisetty, A. Jain, K. Morris, P. Suresh, C. Zhao, L. Hailemariam, G. Joglekar, G.V. Reklaitis and V. Venkatasubramanian. AAPS Annual meeting, San Antonio, TX. Oct. 28- Nov. 2, 2006.
46. "Modeling and monitoring of tablet bed dynamics in a side-vented pan coater by digital video imaging and analysis", V. Hoon, J. Perez-Ramos, K. Morris and C. Wassgren. AAPS Annual meeting, San Antonio, TX. Oct. 28- Nov. 2, 2006.
47. "Elucidating tablet movement in a side-vented pan coater by digital video analysis", V. Hoon, J. Perez-Ramos, K. Morris and Carl Wassgren. AAPS Annual meeting, San Antonio, TX. Oct. 28- Nov. 2, 2006.

48. Morris, K. R., "Moderating between Industry and FDA with workshops on Quality by Design". Three given in 2006.
49. Morris, K. R. "An informatics framework for pharmaceutical product development". American Institute of Chemical Engineers Annual Meeting, Cincinnati, Ohio. November 2005.
50. Morris, K. R. "Impact of pharmaceutical solid structure". Invited Talk—Short Course: College of Pharmacy, University of Arizona, Tucson, Arizona. April 2005.
51. Morris, K. R. "Impact of pharmaceutical solid structure". Invited Talk—Short Course: College of Pharmacy, University of Arizona, Tucson, Arizona. May 2004.
52. Morris, K. R. "Mechanically activated solid state phase transformations of active pharmaceutical compounds". Invited Talk: College of Pharmacy, Duquesne University, Pittsburgh, PA. April 2004.
53. Morris, K. R. "Mechanically activated solid state phase transformations of active pharmaceutical compounds". Invited Talk: College of Pharmacy, University of Kentucky, Lexington, KY. April 2004.
54. Morris, K. R. "Utility of modern process analyzers in development, scale-up and manufacturing: Drug products". Invited Talk—Workshop: 2004 Arden House European Conference, London, England. March 2004.
55. Morris, K. R., "Considerations for a risk-managed product". Invited Talk: 2004 Arden House European Conference, London, England. March 2004.
56. Morris, K. R. "Utility of modern process analyzers in development, scale-up and manufacturing: Drug products". Invited Talk, Designer and Organizer. AAPS Arden House Conference "Quality by Design in Pharmaceutical Development and Manufacturing: Principles, Applications and Scientific Risk-Based Regulatory Decisions," Harriman, NY. January 2004.
57. Morris, K. R. Considerations for a risk-managed product. Invited Talk, Designer and Organizer. AAPS Arden House Conference "Quality by Design in Pharmaceutical Development and Manufacturing: Principles, Applications and Scientific Risk-Based Regulatory Decisions," Harriman, NY. January 2004.
58. Morris, K. R. Challenges in the pharmaceutical industry in view of FDA regulatory issues. Symposium. Invited Talk: American Institute of Chemical Engineers, San Francisco, CA. November, 2003.

59. Wildfong, P. L. D., Moore, M. D., Morley, N. A. Morris, K. R., and Peck, G. E. Towards a mechanism for mechanically activated phase transformations. Poster: AAPS National, Salt Lake City, UT. 10/2003.
60. Morris, K. R. Invited Talk: Abbott Laboratories, Chicago, IL. October 2003.
61. Gupta, A., Peck G. E., Stowell, J. G., Byrn, S. R., and Morris, K. R. Quantitative determination of compact strength and the particle-size distribution upon milling of compacts prepared by roller compaction. Poster Presentation: AAPS National Meeting, Salt Lake City, UT. October 2003.
62. Engers, D. A., Fricke, M. N. , Storey, R. P., and Morris, K. R. Correlation of triboelectric behavior and dielectric response in pharmaceutically relevant materials. Poster: AAPS, Salt Lake City, UT. 10/2003.
63. Gupta, A., Peck, G. E., Miller, R. W. and Morris, K. R. Near Infrared Monitoring of Roller Compaction. Presentation: Institute for Briquetting & Agglomeration, Santa Fe, NM. September 2003.
64. Morris, K. R. Invited Talk: European Polymorphism Congress, Innsbruck, Austria. September 2003.
65. Morris, K. R. Invited Talk: Phandta 7, Innsbruck, Austria, Sept. 20, 2003
66. Morris, K. R. Various approaches of process analytical technologies (PAT) for pharmaceutical operations. Invited Talk: International Symposium on Development and Manufacturing Needs in Health Care Industries Conference, Ann Arbor, MI. (September, 2003).
67. Morris, K. R. Invited Talk: Molecular Crystallization Consortium, San Diego, CA. June 2003.
68. Morris, K. R. Overview of mechanical properties at a molecular level. Invited Talk—Symposium: Land O' Lakes Conf, Devils Head, WI. 2003.
69. Morris, K. R. Invited Talk, Designer and Organizer of Short Course: FDA Process Analytical Technology Training Session, Purdue University, West Lafayette, IN. May 2003.
70. Morris, K. R. Impact of pharmaceutical solid structure. Invited Talk—Short Course: College of Pharmacy, University of Arizona, Tucson, AZ. April 2003.
71. Morris, K. R. Invited Talk: ACS Conference "Polymorphism in Crystals: Fundamentals, Prediction, and Industrial Practice" (February 2003)

72. Morris, K. R. Invited Talk, Designer and Organizer. AAPS Arden House Conference "Fluidized Bed Drying, Monitoring and Modeling" (Jan. 2003).
73. Morris, K. R. Invited Talk—Short Course: FDA Pharmaceutical Advisory Committee, Rockville, MD. December 2002.
74. Morris, K. R. Invited Talk—Short Course: Watson Pharmaceuticals, Corona, CA. November, 2002.
75. Morris, K. R. Invited Talk—Short Course: AAPS Annual Meeting, Toronto, Canada. November 2002.
76. Morris, K. R. Invited Talk: AAPS Annual Meeting, Toronto, Canada. November, 2002.
77. Morris, K. R. Invited Talk: FDA Pharmaceutical Advisory Committee, Rockville, MD. October 2002.
78. Morris, K. R. Invited Talk: Pharmacia, Kalamazoo, MI. September 2002.
79. Morris, K. R. Invited Talk—Short Course: University of Michigan, Ann Arbor, MI. August 2002.
80. Cao, W., Findlay, W.P., Leas, J., and Morris, K.R. Studies of compression-induced polymorphic transformations: high pressure Raman studies. Poster Presentation: Midwest Organic Solid State Chemistry Solid State Chemistry Symposium XIII, Iowa City, IA. June 2002.
81. Davis, T.D., Morris, K.R., Peck, G.E., Stowell, J.G., Huang, H., Gibson, D., and Byrn, S.R. In Situ monitoring of wet granulation using online X-Ray powder diffraction. Poster Presentation: Midwest Organic Solid State Chemistry Solid State Chemistry Symposium XIII, Iowa City, IA. June 2002.
82. Engers, D., Hilden L., and Morris, K. R. Master curves to predict relaxation and crystallization of amorphous compounds. Poster Presentation: Midwest Organic Solid State Chemistry Solid State Chemistry Symposium XIII, Iowa City, IA. June 2002.
83. Wildfong, P. Peck, G., and Morris, K. R. Crystal form changes during compaction Phase 2: Mechanical stress surrogate. Poster Presentation: Industrial Advisory Board Meeting for NSF CPPR, University of Connecticut, Storrs-Mansfield, CT. May 2002.

84. Davis, T.D., Morris, K.R., Peck, G.E., Stowell, J.G., Huang, H., Gibson, D., and Byrn, S.R. In Situ monitoring of wet granulation using online X-Ray powder diffraction. Poster Presentation: Pharmaceutics and Drug Delivery Conference; Arlington, VA. April, 2002.
85. Morris, K. R. Properties of pure amorphous material: Theoretical aspects. Invited Talk—Symposium: AAPS Pharmaceutics and Drug Delivery Conference, Arlington, VA. April 2002.
86. Morris, K. R. Average crystalline shape: Determination by use of X-ray. Invited Talk: College of Pharmacy, University of Chicago, Chicago, IL. April 2002.
87. Morris, K. R. Mechanical testing of scaffolding tissues. Invited Talk: Tissue Engineering Board, West Lafayette, IN. March 2002.
88. Morris, K. R. Introduction to pharmaceutical solids. Invited Talk: College of Pharmacy, University of Michigan, Ann Arbor, MI. March 2002.
89. Morris, K. R. Invited Talk: University of Puerto Rico, Mayaguez, PR. January 2002.
90. Wildfong, P., Cao, W., Peck, G. and Morris, K. R. Poster Crystal form changes during tablet compaction. Presentation: Industrial Advisory Board Meeting for National Science Foundation Center for Pharmaceutical Processing Research, Purdue University, West Lafayette, IN. November 2001.
91. Morris, K. R. Etching study of acetaminophen crystals. Invited Talk: College of Pharmacy, University of Minnesota, Minneapolis, MN. December 2001.
92. Morris, K. R. Phonons and persistent meta-stable forms. Invited Talk and Symposium Organizer/Moderator. AAPS National Meeting, Denver CO. October 2001.
93. Morris, K. R. Average crystalline shape: Determination by use of X-ray. Invited Talk: Department of Chemistry, University of Dayton, Dayton, OH. September 2001.
94. Davis, T.D., Stowell, J.G., Morris, K.R., and Byrn, S.R. Phase transformations during wet granulation. Presentation: Midwest Organic Solid State Chemistry Symposium XII, Lincoln, NE. June 2001.
95. Morris, K. R. Determination of average crystalline shape. Invited Talk: College of Pharmacy, Univ. of Arizona, Tucson, and AZ. May 2001.

96. Davis, T.D., Morris, K. R., Stowell, J. G., Byrn, S. R., Placette, A. W., and Peck, G.E. Accelerated fluid bed drying using NIR monitoring and phenomenological modeling. Presentation: Jenkins/Knevel Award for Excellence in Research; West Lafayette, IN. April 2001.
97. Morris, K. R. Etching study of acetaminophen crystals. Invited Talk: Molecular Crystallization Consortium Meeting, Amsterdam, The Netherlands. March 2001.
98. Chen, X., Stowell, J. G., Pfeiffer, R. R., Morris, K. R., and Byrn, S. R. Reactivity differences of two polymorphs of flufenamic acid in solid-state acid-base reactions. Poster presentation: AAPS, Indy, IN. October 2000.
99. Qiu, Z., Morris, K. R., Stowell, J. G., and Byrn, S. R. Solid state Maillard reaction between metoclopramide hydrochloride and lactose. Poster presentation: AAPS National Meeting, Indianapolis, IN. October 2000.
100. Abraham, L. R., Cao, W., Davis, T. D., Findlay, W., Morris, K. R., and Nail, S. L. The effect of mannitol, human serum albumin and moisture content on the molecular mobility of amorphous sucrose. Poster presentation: AAPS National Meeting, Indianapolis, IN. October 2000.
101. Li, T., Morris, K., and Park, K. Influence of tailor-made additives on the formation of etching patterns of acetaminophen single crystals. Poster presentation: AAPS National Meeting, Indianapolis, IN. October 2000.
102. Bi, M. and Morris, K. R. Correlation of hygroscopicity and molecular and crystal structures using genetic function approximation method. Poster presentation: AAPS National Meeting, Indianapolis, IN. October 2000.
103. Davis, T. D., Morris, K., R., Stowell, J. G., Byrn, S. R. Phase transformation during wet granulation. Poster presentation: AAPS National Meeting, Indianapolis, IN. October 2000.
104. Hu, Y., Stowell, J. G., Morris, K. R., and Byrn, S. R. Stabilization of amorphous dipeptide angiotensin-converting enzyme (ACE) inhibitors with excipients. Poster presentation: AAPS National Meeting, Indianapolis, IN. October 2000

105. Morris, K. R. Polymorphic and solvation changes during processing. Poster presentation: AAPS National Meeting, New Orleans, LA. 11/99.
106. Morris, K. R. Etching patterns of acetaminophen crystal surfaces. Invited Talk: Department of Chemistry, Eastern Michigan University, Ypsilanti, MI. October 2001.
  
107. Te, R. L., Morris, K. R., Stowell, J. G., and Byrn, S. R. Effect of dehydration on the oxygen reactivity of prednisolone t-butyl acetate. Poster: AAPS National Meeting, New Orleans, LA. Nov. 1999.
  
108. Chen, X., Stowell, J. G., Pfeiffer, R. R., Morris, K. R. and Byrn, S. R. Study of solid-state acid-base reactions between indomethacin and sodium carbonate by TG, FT-IR and XRPD. Poster presentation: AAPS National Meeting, New Orleans, LA. November 1999.
  
109. Chen, X., Stowell, J. G., Pfeiffer, R. R., Morris, K. R., and Byrn, S. R. Solid-state acid-base reaction between flufenamic acid and magnesium excipients. Poster presentation: AAPS National Meeting, New Orleans, LA. November 1999.
  
110. Hu, Y., Stowell, J. G., Morris, K. R., and Byrn, S. R. Solid-state stability of the crystalline and amorphous lisinopril. Poster presentation: AAPS National Meeting, New Orleans, LA. November 1999.
  
111. He, X. R., Stowell, J. G., Morris, K. R., Stahly, P. G., and Byrn, S. R. Control of crystallization of a metastable polymorph by tailor-made additives. Poster presentation: AAPS National Meeting, New Orleans, LA. November 1999.
  
112. Habib, Y., Young, G., Abramowitz, R., and Morris, K. R. Effect of superdisintegrants and magnesium stearate on the conversion of anhydrous lactose to  $\alpha$ -lactose monohydrate. Poster presentation: AAPS National Meeting, New Orleans, LA. November 1999.
  
113. Li, T., Morris, K. R., and Park, K. A study of etching mechanism of acetaminophen single crystals with atomic force microscopy and computer simulation. Poster presentation: AAPS National Meeting, New Orleans, LA. November 1999.
  
114. Griesser, U. J., Morris, K. R., and Byrn, S. R. Solid state properties and structural characterization of orotic acid crystal forms. Poster presentation: AAPS National Meeting, San Francisco, CA. November 1998.



115. Chen, X., Griesser, U. J., Joshi, V., Te, R., Stowell, J. G., Pfeiffer, R., Morris, K. R., and Byrn, S. R. Solid state acid-base reaction of indomethacin. Poster presentation: AAPS National Meeting, San Francisco, CA. November 1998.
116. Te, R., Griesser, U. J., Morris, K. R., Stowell, J. G., and Byrn, S. R. Solid state investigation of thiamine hydrochloride. Poster presentation: AAPS National Meeting, San Francisco, CA. November 1998.
117. Li, T., Morris, K. R., and Park, K. Fractal analysis of acetaminophen crystal during dissolution. Poster presentation: AAPS National Meeting, San Francisco, CA. November 1998.
118. Morris, K. R. Crystallization and polymorphism issues in controlled release dosage forms. Controlled Release Society Workshop, Las Vegas, NV. June 1998.
119. Morris, K. R. Hydrate Characteristics and the pharmaceutical development process. Invited Talk: Purdue University, West Lafayette, IN. June 1998.
120. Morris, K. R. and Bowman B. Determining morphology based flow characteristics of APAP using PXRD, Cerius<sup>2</sup> and Optical Microscopy. Invited Talk: International Symposium on New Approaches to Pharmaceutical Development, Paris, France. May 1998 and previously, San Diego, CA, 1998.
121. Griesser, U. J., Morris, K. R., and Byrn, S. R. Structural changes in orotic acid monohydrate upon dehydration: an uncommon crystalline hydrate. Poster presentation: International Symposium on New Approaches to Pharmaceutical Development, San Diego, CA. May 1998.
122. Sarsfield, B. A., and Morris, K. R. Polymorph control during a BMS compound crystallization step and the role of Cerius<sup>2</sup>. Poster presentation: International Symposium on New Approaches to Pharmaceutical Development, San Diego, CA. February 1998.
123. Morris, K. R. and Ku, C. Classification and characterization of protein hydration. Poster presentation: Purdue-Wisconsin Symposium on Water in Pharmaceutical Solids, Purdue University, West Lafayette, IN. September 1997.
124. Morris, K. R. A prediction of crystal morphology and its potential impact on dehydration kinetics of crystalline hydrates. Invited Talk: College of Pharmacy, University of Michigan, Ann Arbor, MI. September 1996.

125. Morris, K. R. Structural aspects of crystalline hydrates. Invited Talk: Joint FDA-AAPS Symposium on Polymorphism, Washington, DC. February 1996.
126. Guma, N., Kale, K., and Morris, K. R. An investigation of film curing stages using DEA and physical characterization. Invited Talk: Purdue-Wisconsin Symposium on Water in Pharmaceutical Solids, Purdue University, West Lafayette, IN. September 1995.
127. Morris, K. R. First order phase transitions in preformulation studies and process development. Invited Talk: Philadelphia Discussion group, Philadelphia, PA. December 1994.
128. Morris, K. R. First order phase transitions in pharmaceutical systems. Invited Talk: 36th Annual International Industrial Pharmaceutical Research Conference (Wisconsin Land of Lakes), Merrimac, WI. July 1994.
129. Morris, K. R., Gougoutas, J. G, and Malley, M. Physical characterization of crystalline hydrates of pharmaceutical compounds. Invited Talk: Chemistry Symposium, Rutgers College, Rutgers University, New Brunswick/Piscataway, NJ. May 1993.
130. Pazdan, J., Amsberry, K. L., and Morris, K. R. Statistical aspects of dynamic light scattering. Podium presentation: AAPS, San Antonio, TX. November 1992.
131. Morris, K. R., Evans, S. A., Mackenzie, A. P., and Lordi, N. G. Prediction of lyophile collapse temperature using dielectric analysis. Invited Talk: The Symposium on the Effect of Water on the Molecular Motion of Pharmaceutical Solids, Madison, Wisconsin. September 1992.
132. Morris, K. R., Newman, A. W., and Bugay, D. E. The effect of particle size on the structural and energetic characterization of pharmaceutical solids. Invited Talk: The Symposium on Pharmaceutical Solids, Fine Particle Society National Meeting, Las Vegas, Nevada. July 1992.
133. Morris, K. R. A structural approach to the characterization of crystalline hydrates. Invited Talk: University of Arizona, Tucson, AZ. 1992.
134. Morris, K. R., Evans, S. A., Mackenzie, A. P., and Lordi, N. G. Optimization of lyophilization using dielectric analysis. Poster presentation: AAPS Eastern Regional Meeting, New Brunswick, NJ. 1992.
135. Strand, S. W., Bugay, D. E., and Morris, K. R. Application of FTIR reflection spectroscopy in the study of material at elevated temperature. Abstract #857, Pittsburgh Conference, Chicago, IL. 1991.

136. Desai, D. S., Rubitski, B.A., Varia, S. A., Newman, A. W., and Morris, K. R. Physical interactions of different lubricants with starch-derived disintegrants and their effects on capsule dissolution. Poster presentation: AAPS National Meeting in Washington, DC. 1991.
137. Serajuddin, A. T. M., Thakur, A. B., Ghoshal, R. N., Ranadive, S. A., Knipp, G. T., Fakes, M. G., and Morris, K. R. Drug-exciipient compatibility screening: a practical model. Poster: AAPS National Meeting, DC. 1991.
138. Thakur, A. B., Morris, K. R., Jerzewski, R. L., Wadke, D. A., and Carstensen, J. T. Kinetics of magnesium ion-mediated degradation of fosinopril sodium. Podium presentation: AAPS, Washington, DC. 1991.
139. Bugay, D. E., Morris, K. R., Findlay, W. P., and Lambarski, D. P. Where did the IR peaks go? Comparison of diffuse reflectance and KBr pellet sampling techniques for hydrate characterization by FTIR spectroscopy. Podium presentation: AAPS National Meeting, Washington, DC. 1991.
140. Morris, K. R., Newman, A. W., Bugay, D. E., Ranadive, S. A., Szyper, M., Varia, S. A., Brittain, H. G., and Serajuddin, A. T. M. Humidity dependent changes in crystalline properties of an organic hydrate in bulk material and in solid dosage forms. Poster presentation: AAPS National Meeting, Washington, DC. 1991.
141. Morris, K. R., Amsberry, K. L., Wang, Z., and Serajuddin, A.T. M. Some pharmaceutical applications of laser light scattering. Podium presentation: AAPS National Meeting, Washington, DC, 1991.
142. Morris, K. R., Bugay, D. E., Serajuddin, A. T. M., Brittain, H. G., and Thakur, A. B. Investigation of polymorphism of fosinopril sodium a new ACE Inhibitor, Invited paper: 3<sup>rd</sup> Annual Midwest Organic Solid-State Chemistry Symposium, Purdue University, West Lafayette, IN. June 1990.
143. Morris, K. R., Knipp, G., and Serajuddin, A. T. M. Structural properties of Polyethylene Glycol: Polysorbate 80 mixtures, a solid dispersion vehicle. Poster presentation: AAPS National Meeting, Atlanta, GA. 1989.
144. Morris, K. R., Bugay, D. E., Serajuddin, A. T. M., Brittain, H. G., and Thakur, A. B. Investigation of polymorphism of fosinopril sodium a new ACE Inhibitor. Poster presentation: AAPS National Meeting, Atlanta, GA. 1989.
145. Wesdyke, R., Joshi, Y., Jain, N., Morris, K. R., and Newman, A. W. The effect of size and mass on the film thickness of beads coated in fluidized bed equipment. Poster presentation: AAPS National Meeting, Atlanta, GA. 1989.

146. Bugay, D. E., Morris, K. R., and Brittain, H. G. Quantitative determination of polymorphism in fosinopril sodium using solid state  $^{31}\text{P}$  and  $^{13}\text{C}$  NMR spectroscopy. Poster presentation: AAPS National, Orlando, FL. 1988.
147. Morris, K. R. and Yalkowsky, S. H. Predicting mixed solvent solubilities of hydrophobic pollutants. Poster presentation: AAPS Regional Meeting, Reno, Nevada. 1987.
148. Karickhoff, S. W. and Morris, K. R. Sorption dynamics of hydrophobic pollutants in sediment suspensions. Poster presentation: Gordon Research Conference; Environmental Section, Concord, New Hampshire. 1982.