

SINGAPORE-MIT ALLIANCE SMA-2 PUBLICATIONS

AMM&NS programme (AY 2006/2007)

Number of Research Projects with publications: 1 FRP and 4 IUPs

(A) Collaborative Publications with SMA-MIT Fellows

(1) FRP: Advanced Materials and Nanotechnology on a Silicon Platform

AY 2006/2007

Journal Publication

1. Yan Q, Gao L, Wong C C & Chiang Y M, "Charge Effect on colloidal Self-assembly in a Sessile Drop", In preparation.
2. Yan Q, Wong C C & Chiang Y M, "Directed growth of colloidal crystals on a hydrophobic polymer film by using hydrophilic traps", Thin Solid Films, Accepted for publication.
3. Soh C B, Hartono H, Chow S Y, Chua S J & Fitzgerald E A, "Dislocation annihilation in regrown GaN template with optimization of buffer layer growth", Applied Physics Letters, Accepted January 2007.
4. Hartono H, Chua S J, Chen P & Fitzgerald E A, "Growth of InN and its effect on InGaN epilayer by metalorganic chemical vapor deposition", Thin Solid Films, Accepted March 2007.
5. K L Lew, S F Yoon, W K Loke, H Tanoto, C L Dohrman, D M Isaacson & E A Fitzgerald, "High gain AlGaAs/GaAs heterojunction bipolar transistor fabricated on SiGe/Si substrate", Journal of Vacuum Science and Technology B, Submitted.
6. Koh Y K, Yip C H, Chiang Y M & Wong C C, "Kinetic stages of colloidal Self Assembly", In preparation.
7. Yan Q, Wong C C & Chiang Y M, "Layer transfer approach to opaline hetero photonic crystals", Journal of Materials Chemistry, Submitted.
8. Yan Q, Wong C C & Chiang Y M, "Nanosphere Lithography by Using Etched Colloidal Crystals", In preparation.
9. Vajpeyi A P, Tripathy S, Wang L S, Foo B C, Chua S J, Fitzgerald E A & Alves E, "Optical activation of Eu ions in nanoporous GaN films", Journal of Applied Physics, Accepted May 2006.
10. Le H Q, Chua S J, Fitzgerald E A & Loh K P, "Optical properties of well aligned ZnO nanorods on GaN by hydrothermal synthesis", Nanotechnology, Accepted March 2006.
11. Yan Q, Wong C C & Chiang Y M, "Ordered macroporous gold thin film with captured polymer spheres", Journal of Materials Chemistry, Submitted.
12. Le H Q, Chua S J, Loh K P, Fitzgerald E A & Koh Y W, "Synthesis and optical properties of well aligned ZnO nanorods on GaN by hydrothermal synthesis", Nanotechnology, Accepted January 2006.
13. Le H Q, Chua S J, Koh Y W, Loh K P & Fitzgerald E A, "Systematic studies of the epitaxial growth of single crystal ZnO nanorods on GaN using hydrothermal synthesis", Crystal Growth, Accepted July 2006.
14. Le H Q, Chua S J, Fitzgerald E A & Loh K P, "The effect of post annealing treatment on photoluminescence of ZnO nanorods prepared by hydrothermal synthesis", Journal of Crystal Growth, Accepted January 2006.
15. Chen A, Chua S J, Xing G C, Ji W, Zhang X H, Dong J R, Jian L K & Fitzgerald E A, "Two-dimensional AlGaInP/GaInP photonic crystal membrane lasers operating in the visible regime at room temperature", Applied Physics Letters, Accepted January 2007.

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SMA-2 PUBLICATIONS

Conference Publication

1. Yan Q, Wong C C & Chiang Y M, "Directed growth of colloidal crystals on a hydrophobic polymer film by using hydrophilic traps", International Conference on Technological Advances of Thin Films & Surface Coatings (Thin Films 2006).
2. Yan Q, Gao L, Wong C C & Chiang Y M, "Real-time microscopic visualization of layer transitions during colloidal self-assembly in a sessile drop", International Conference on Materials for Advanced Technologies 2007 (ICMAT 2007).
3. Quang L H, Chua S J, Loh K P & Fitzgerald E A, "The effect of post-annealing treatment on photoluminescence of ZnO nanorods prepared by hydrothermal synthesis", The International Conference on Materials for Advanced Technologies (ICMAT 2005 : Symposium N).
4. Yan Q, Wong C C & Chiang Y M, "Top-down approach for patterning colloidal photonic crystals", The 5th International Conference on Materials Processing for Properties and Performance (MP3)

(2) IUP: Exploratory Research on Phase Change Materials for Applications in Micro- and Nano-Systems

Conference Publication

Johannes A Kalb, Guo Qiang, Zhang Xiao Qiang, Li Yi & C V Thompson, "Influence of laser-induced phase transformations on mechanical stresses and crystallization kinetics in thin films of Te alloys", SMA Annual Symposium, 2007.

(3) IUP: Integrated MRAM

Journal Publication

X S Gao, A O Adeyeye, S Goolaup, N Singh, W Jung, F J Castano & C A Ross, "Inhomogeneities in Spin States and Magnetization Reversal of Geometrically Identical Elongated Co Rings", Journal of Applied Physics, In Press 2007.

(4) IUP: Nanomechanics Ultra-Fine-Scale Structures and Living Cells

Journal Publication

J P Mills, M Diez-Silva, D J Quinn, M Dao, K S W Tan, C T Lim, G Milon, P H David, O Mercereau-Puijalon, S Bonnefoy & S Suresh, "Effect of plasmodial RESA protein on deformability of human red blood cells harboring", Plasmodium Falciparum, Submitted for publication February 2007.

Conference Publication

C T Lim, K S W Tan & S Suresh, "Cell and Molecular mechanics in BioMedicine with a focus on Infectious Diseases", First GEM4 Summer School (Invited Lectures), MIT, 6-19 August 2006.

(5) IUP: Enabling Materials Technology for 3D IC's and heterogeneous Systems

Conference Publication

H L Leong, C L Gan, C V Thompson, K L Pey & Hongyu Li, "Effects of Bonding Force and Nanometer-Scale Surface Roughness on Cu-Cu Thermocompression Bonds", MRS Spring Meeting 2007.

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SMA-2 PUBLICATIONS

AMM&NS programme (AY 2006/2007)

(B) Non-collaborative Publications

(1) FRP: Advanced Materials and Nanotechnology on a Silicon Platform

AY 2006/2007

Journal Publications

1. Menon R & Smith H I, "Absorbance-modulation optical lithography", Journal of Optical Society of America A, Accepted September 2006.
2. Barsotti, Vahey, Wartena, Chiang, Voldman Stellacci, "Assembly of Metal Nanoparticles into nanogaps", Small, Published, Vol. 3, Issue 3, pp. 488-499, March 2007.
3. Li H, Zhang Qi & el al, "Charge-Trapping Effects Caused by Ammonia in Carbon Nanotubes", Journal of Nanoscience and nanotechnology, Accepted January 2007.
4. Ng T H, Chim W K & Choi W K, "Conductance-voltage measurements on germanium nanocrystal memory structures and effect of gate electric field coupling", Applied Physics Letters, Accepted March 2006.
5. Sharma V, Carter W C & Chiang Y M, "Controlled Rapid Ordering of Oppositely-Charged Colloidal Spheres", In preparation.
6. Nayfeh O M, Antoniadis D A, Mantey K & Nayfeh M H, "Memory effects in metal-oxide semiconductor capacitors incorporating dispensed highly monodisperse 1 nm Si nanoparticles", Applied Physics Letters, Accepted April 2007.
7. Krishnan R & Thompson C V, "Mono-Domain High Aspect Ratio 2-D and 3-D Ordered Porous Alumina structures with Independently Controlled Pore Spacing and Diameter", Advanced Materials, Accepted April 2007.
8. Teh L K, Yan Q & Wong C C, "Optically Active Planar Defects by Self-Assembly of Nanocrystals", Advanced Materials, Submitted.
9. J Y Cheng, V Chuang, F Zhang, A Mayes, C A Ross, "Self-assembled one-dimensional nanostructure arrays", Nano Letters, Published, Vol. 6, No.9, pp. 2099-2103, September 2006.
10. Liu X G, Wu N, Wunsch B H, Barsotti R J Jr & Stellacci F, "Shape-Controlled Growth of Micrometer-Sized Gold Crystals by a Slow Reduction Method", Small, Accepted April 2007.
11. Ross C A, Smith H I & Thomas E L, "Templated Self-Assembly of Block Copolymers: Top-down Helps Bottom-Up", Advanced Materials, Accepted October 2006.
12. V P Chuang, J Y Cheng, T A Savas & C A Ross, "Three-dimensional Self-assembly of spherical block copolymer domains into V-shaped grooves", Nano Letters, Published, Vol. 6, No. 10, pp. 2332-2337, October 2006.
13. Koh Y K, Teh L K & Wong C C, "Transition State Annealing for Defect Control during Colloidal Self Assembly", Thin Solid Films, Accepted for publication.

Conference Publication

1. Nayfeh O M & Antoniadis D A, "Calibrated Hydrodynamic Simulation of Deeply Scaled Well-Tempered Nanowire Field Effect Transistors", IEEE SISPAD 2007,
2. O'Reilly T B & Smith H I, "Characterization of photoresist using double-exposure with interference lithography", International Conference on Electron, Ion and photon Beam Technology and Nanofabrication, June 2007.

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SMA-2 PUBLICATIONS

3. Kozinsky B & Marzari N, "Dielectric response of carbon and boron nitride nanotubes from first-principles calculations", Materials Research Society (MRS) Fall Meeting, Boston, USA & American Physical Society Meeting, March 2007
4. Kozinsky B, Levitov L & Marzari N, "Luttinger liquid parameters of carbon nanotubes from density-functional theory", 18th Annual Workshop on Nove Developments in Electronic Structure Methods, 2007
5. Kozinsky B, Levitov L & Marzari N, "Luttinger liquid parameters of carbon nanotubes from first-principles", American Physical Society March Meeting, 2007
6. Shao Q, The L K, Yan Q & Wong C C, "Optical study of size-matched hetero-opals", International Conference on Materials for Advanced Technologies 2007 (ICMAT 2007)
7. Dabo I, Kozinsky B, Singh-Miller N & Marzari N, "Real-space corrections for electrostatic interactions in periodic-boundary conditions", 19th Annual Workshop on Recent Developments in Electronic Structure Methods, June 2007.
8. Illievski F, Cheng J Y, Chuang V P W & C A Ross, "Self-Assembled Block copolymer Lithography for Data Storage Applications", Materials Research Society (MRS) Fall Meeting, Boston, USA.
9. Miller N, Ryu J & Marzari N., "Work functions of functionalized single walled carbon nanotube", Materials Research Society (MRS) Fall Meeting, Boston, USA, 2006 & American Physical Society March Meeting, March 2007.

(2) IUP: Exploratory Research on Phase Change Materials for Applications in Micro- and Nano-Systems

Conference Publication

Guo Qiang & C V Thompson, "Actuation Application of Thin Film Phase Change Materials in MEMS", SMA Annual Symposium, 2007.

(3) IUP: Intergrated MRAM

Journal Publications

1. D Morecroft, F J Castano, W Jung & C A Ross, "Angular dependence of the giant magnetoresistance in multilayer rings with different contact configurations", Journal of Applied Physics, Published, Vol. 99, Issue 8, pp. 08T104, 15 April 2006.
2. C A F Vaz, T J Hayward, J Llandro, F D O Schackert, D Morecroft, J A C Bland, M Klaui, M Laufenberg, D Backes, U Rudiger, F J Castano, C A Ross, L J Heyderman, F Nolting, A Locatelli, G Faini, S Cherifi, W Wernsdorfer, "Ferromagnetic nanorings", Journal Physics Condensed Matter, Accepted 2006.
3. A K Petford-Long, T J Bromwich, A Kohn, V Jackson, T Kasama, R Dunin-Borkowski, C A Ross, "In situ TEM studies of magnetization processes in magnetic nanostructures", In-Situ Electron Microscopy of Materials, 0907-MM04-01, pp. 1-12, Edited by Paulo J Ferreira, Ian M Robertson, Gerhard Dehm, Hiroyasu Saka (Mater. Res. Soc. Symp. Proc. 907E, Warrendale PA, 2006).
4. D Morecroft, F J Castano, W Jung, J Feuchtwanger & C A Ross, "Influence of contact geometry on the magnetoresistance of elliptical rings", Applied Physics Letters., Published, Vol. 88, Issue 17, pp. 172508, 24 April 2006.
5. T J Bromwich, A K Petford-Long, F J Castano & C A Ross, "Lorentz microscopy of elliptical magnetic rings", Journal of Applied Physics, Published, Vol. 99, Issue 8, pp. 08H304, 15 April 2006.

SINGAPORE-MIT ALLIANCE SMA-2 PUBLICATIONS

6. F J Castano, D Morecroft & C A Ross, "Low field giant magnetoresistance in layered magnetic rings", *Physical Review B*, Published, Vol. 74, Issue 22, pp. 224401, 4 December 2006.
7. T J Hayward, J Llandro, F D O Schackert, D Morecroft, R B Balsod, J A C Bland, F J Castano & C A Ross, "Measurement of variable magnetic reversal paths in electrically contacted pseudo-spin-valve rings", *Journal Physics D*, Published, Vol. 40, No. 5, pp. 1273-1279, 16 February 2007.
8. C A Ross, F J Castano, D Morecroft, W Jung, Henry I Smith, T A Moore, T J Hayward, J A C Bland, T J Bromwich, & A K Petford-Long, "Mesoscopic Thin Film Magnetic Rings", *Journal of Applied Physics*, Published, Vol. 99, Issue 8, pp. 08S501, 15 April 2006.
9. N Singh, S Goolaup, W Tan, A O Adeyeye & N Balasubramanian, "Micromagnetics of derivative ring-shaped nanomagnets", *Phys. Rev. B*, Accepted 2007.
10. F Y Ogrin, S M Weekes, B Cubitt, A Wildes, A Drew, C A Ross, W Jung & R Menon, "PNR investigation of periodic magnetic rings", *Journal of Applied Physics*, In press, 2007.
11. T Hayward, J Llandro, R B Balsod, J A C Bland, F J Castano, D Morecroft, C A Ross, "Reading and writing of vortex circulation in pseudo-spin-valve ring devices", *Applied Physics Letters*, Published, Vol. 89, Issue 11, pp. 112510, 11 September 2006.
12. T A Moore, T J Hayward, D H Y Tse, J A C Bland, F J Castano, C A Ross, "Stochastic switching in individual micrometer-sized permalloy rings", *Physica B*, Published, Vol. 372, Issue 1-2, pp. 164-167, 1 February 2006.
13. T J Hayward, J Llandro, R B Balsod, J A C Bland, D Morecroft, F J Castano, C A Ross, "Switching behavior of individual pseudo-spin-valve ring structures", *Physical Review B*, Published, Vol. 74, Issue 13, pp. 134405, 9 October 2006.
14. W Jung, F J Castano, C A Ross, "Vortex Chirality in Exchange Biased Elliptical Magnetic Rings", *Physical Review Letters*, Published, Vol. 97, Issue 24, pp. 247209, 15 December 2006.

(4) IUP: Nanomechanics Ultra-Fine-Scale Structures and Living Cells

Journal Publications

1. G Y H Lee & C T Lim, "Biomechanics approaches to studying human diseases", *Trends in Biotechnology*, Published, Vol. 25, No. 3, pp. 111-118, March 2007.
2. S Suresh, "Mechanical response of human red blood cells in health and disease: Some structure-property-function relationships", *Journal of Materials Research*, Published, Vol. 21, Issue 8, pp. 1871-1877, 2006.

Conference Publications

1. C T Lim, et al, "Biomechanics approaches to studying cancer", TMS Meeting, Orlando, USA, 2007
2. S Suresh, et al, "Cell mechanics and the Study of Infectious Diseases", The Gordon Moore distinguished Scholar Lecture, California Institute of Technology, March 2006
3. S Suresh, "Materials Science Approaches at the Borders of Engineering, Biology and Medicine", The Peter Winchell Memorial Lecture, Purdue University, April 2006
4. C T Lim, et al, "Molecular Interaction and Modification in Human Diseased Cells", Biological Materials Science Symposium, TMS Meeting 2006, Texas, USA
5. C T Lim, et al, "Nanobiomechanical approaches to studying human diseases", International Symposium on Mechanical Properties of Small-Volume Structures and biological Materials, American Academy of Arts and Sciences, Cambridge, MA, 28-29 November 2006 & Okinawa, Japan 2006

SINGAPORE-MIT ALLIANCE SMA-2 PUBLICATIONS

6. S Suresh, et al, "Nanomechanics and Human Disease States", The H. Oersted Lecture, Technical University of Denmark, 30 March 2006
7. S Suresh, et al, "Nanotechnology at the intersections of engineering, biology and medicine", Materials Research Society Fall Meeting, Boston, MA, 27 November 2006

(5) IUP: Enabling Materials Technology for 3D IC's and heterogeneous Systems

Journal Publications

R Tadepalli & C V Thompson, "Formation of Cu-Cu Interfaces with Ideal Adhesive Strengths via Room-Temperature Pressure Bonding in Ultra-High Vacuum", Applied Physics Letters, In press.

SINGAPORE-MIT ALLIANCE SMA-2 PUBLICATIONS

CSB programme (AY 2006/2007)

Number of Research Projects with publications: 1 FRP and 3 IUPs

(A) Collaborative Publications with SMA-MIT Fellows

(1) FRP: Tissue Systems Biology

AY 2006/2007

Journal Publications

1. Kim L, Toh Y C, Voldman J & Yu H, "A Practical Guide to Microfluidic Perfusion Culture of Adherent Mammalian Cells", Lab on a Chip, Published, Vol. 7, pp. 681-694, 2007.
2. Li A, Lee P Y, Ho B, Ding J L & Lim C T, "Atomic force microscopy study of the antimicrobial action of sushi peptides on Gram negative bacteria", Biochim. Biophys. Acta (memb), Published, Vol. 1768, pp. 411-418, 2007.

(2) IUP: Advanced Imaging Informatics Technologies

Conference Publications

1. Yang Song, S S Bhowmick, C F Dewey Jr, "BioDIFF: An Effective Fast Change Detection Algorithm for Biological Annotations", 12th International Conference on Database systems for Advanced Applications (DASFAA), Bangkok, Thailand, April 2007.
2. S Prakash, S S Bhowmick, K G Widjanarko, C F Dewey Jr, "Efficient XML Query Processing in RDBMS Using GUI-Driven Prefetching in a Single-User Environment", 12th International Conference on Database Systems for Advanced Applications (DASFAA), Bangkok, Thailand, April 2007.

SINGAPORE-MIT ALLIANCE

SMA-2 PUBLICATIONS

CSB programme (AY 2006/2007)

(B) Non-collaborative publications

(1) FRP: Tissue Systems Biology

AY 2006/2007

Journal Publications

1. Du Y N, Chia S M & Yu H, "3D hepatocyte monolayer on hybrid RGD/galactose substratum", *Biomaterials*, Published, Vol. 27, No. 33, pp. 5669-5680, November 2006.
2. Toh Y C, Zhang C, Zhang J, Khong Y M, Chang S, Samper V D, Hutmacher D W & Yu H, "A novel 3D mammalian-cell perfusion-culture system in micro-fluidic channels", *Lab on a Chip*, Published, Vol. 7, pp. 302-309, 2007.
3. Khong Y M, Chang s, Samper V D, Tang H H & Yu H, "A novel intra-tissue perfusion culture of thick liver slices", *Tissue Engineering*, In press, 2007.
4. S Suresh, "Biomechanics and biophysics of cancer cells", In press, July 2007.
5. Toh Y C, Ng S S S, Khong Y M, Zhang X, Zhu Y J, Lin P C, Teh C M, Sun W X & Yu H, "Cellular responses to a nanofibrous environment", *Nano Today*, Published, Vol. 1, No. 3, pp. 34-43, August 2006.
6. J Li, G Lykotrafitis, M Dao & S Suresh, "Cytoskeletal dynamics of human erythrocyte", *Proceedings of the National Academy of Sciences, USA*, Accepted, March 2007.
7. Tarsa P B, Brau R R, Barch M, Ferrer J M, Freyzon Y, Matsudaira P & Lang M J, "Detecting force-induced molecular transitions with fluorescence resonant energy transfer", *Angew Chem Int Ed Engl*, Published, Vol. 119, No. 12, pp. 2045-2047, 2007.
8. Wen F, Chang S, Toh Y C, Teoh S H & Yu H, "Development of Poly (lactic-co-glycolic acid)-Collagen Scaffolds for Tissue Engineering", *Materials Science and Engineering: C*, Published, Vol. 27, pp. 285-292, 2007.
9. J P Mills, M Diez-Silva, D J Quinn, M Dao, M J Lang, K S W Tan, C T Lim, P H David, G Milon, O Mercerau-Puijilon, S Bonnefoy & S Suresh, "Effect of plasmodial RESA protein on deformability of human red blood cells harboring", *Proceedings of the National Academy of Sciences, USA*, Accepted, May 2007.
10. Du Y N, Han R B, Ng S S, Ni J, Sun W X, Wohland T, Ong S H, Kuleshova L & Yu H, "Identification and characterization of a novel pre-spheroid hepatocyte monolayer", *Tissue Engineering*, In press, 2007.
11. Ong L L, Lin P C, Zhang X, Chia S M & Yu H, "Kinectin-Dependent Assembly of Translation Elongation Factor-1 Complex on Endoplasmic Reticulum Regulates protein Synthesis", *Journal of Biological Chemistry*, Published, Vol. 281, No. 44, pp. 33621-34, 3 November 2006.
12. Zhou B, S Wang, C Mayr, D P Bartel & H F Lodish, "miR-150a mircoRNA expressed in mature B and T cells, blocks early B cell development when expressed prematurely", *Proc. Natl. Acad. Sci. USA*, Published, Vol. 104, pp. 7080-7085, 2007.
13. Toh Y C, Zhang C, Zhang J, Khong Y M, Chang S, Samper V D, Hutmacher D W & Yu H, "Precision-engineered 3D mammalian-cell perfusion-culture platform in micro-fluidic channels", *Lab on a Chip*, Accepted 2006.
14. Ong S M, He L, Linh N T T, Tee Y H, Arooz T, Tang G P, Tan C H & Yu H, "Transient Inter-Cellular Polymeric Linker", *Biomaterials*, Published, Vol. 28, pp. 3656-3667, 2007.

SINGAPORE-MIT ALLIANCE

SMA-2 PUBLICATIONS

Conference Publications

1. M Dao, J Li & S Suresh, "Computational Modeling of Biological Cells and Molecules", Multiscale Materials Modeling 2, International Conference, Freiburg, Germany, September 2006.
2. Yu H, "Engineering and imaging extra-cellular environments", Symposium on Nanobio Integration Nano-Bio UT, Tokyo, Japan, 4-7 December 2006.
3. Yu H, "Imaging Cellular Niche", 9th International Conference on Optics Within Life Science (OWLS9) National Yang-Ming University", Taipei, Taiwan, 26-29 November 2006.
4. H F Lodish, "Micro RNAs that module formation and function of hematopoietic cells", NIDDK Workshop on Micro RNA in Cellular Development and Hematopoiesis", April 2007.
5. S Suresh, J P Mills, M Diez-Silva, G Lykotrafitis, C T Lim & M Dao, "Molecular Mechanics of Human Red Blood Cells", Multiscale Materials Modeling 2, International Conference, Freiburg, Germany, September 2006.
6. S Suresh, "Nanotechnology at the intersections of engineering, life sciences and medicine", Acta Materialia Gold Medal Lecture, MRS Meeting, Boston, USA, November 2006.
7. Minh Le, Huangming Xie, Bing Lim & Harvey F Lodish, "The roles of microRNAs in neuronal differentiation", 5th International Society for Stem Cell Research Annual Meeting, June 2007.
8. Chia S M, Kuan F Y & Yu H, "Thrombospondin-1 is a Key TGF-B1 Activator for Hepatic Stellate Cells in Liver Fibrosis", Keystone Symposium "Molecular Mechanism in Fibrosis: From bench to Bedside", Tahoe City, California, USA, 11-15 March 2007.
9. Minh Le, Bing Lim & Harvey F Lodish, "Transcriptional mechanisms modulating differentiation of stem cells", Singapore-MIT Alliance (SMA) Annual symposium, Singapore, January 2007.

(2) IUP: Advanced Imaging Informatics Technologies

Journal Publications

Maxine Jonas, Yu Yao, Peter T C So & C Forbes Dewey Jr., "Detecting Single Quantum Dot Motion with Nanometer Resolution for Applications in Cell Biology", IEEE Trans. Nanobioscience, Published, Vol. 5, No. 4, pp. 246-250, 2006.

Conference Publications

1. K Hagihara, K Yiu, S Zhang, K Stiel, S S Bhowmick, A Davis, J Evans, C F Dewey Jr, "A Publicly Available Database for Biological Microscopy Images", World Congress on Medical Physics and Biomedical Engineering (W C 2006), Seoul, Korea, 2006.
2. B-Seah, K G Widjanarko, S S Bhowmick, B Choi, E Leonardi, "Efficient Support for Ordered XPath Processing in Tree-Unaware Commercial Relational Databases", 12th International Conference on Database Systems for Advanced Applications (DASFAA), Bangkok, Thailand, April 2007.
3. C F Dewey Jr, S Ayyadurai, V Rouilly, C L Poh, S S Bhowmick, J Evans, R I Kitney, "Footprints in the Sand: Supporting External Analysis of Medical and Biological Databases", World Congress on Medical Physics and Biomedical Engineering (W C 2006), Seoul, Korea, 2006.
4. Erwin Leonardi & Sourav S Bhowmick, "XANADUE: A System for Detecting Changes to XML Data in Tree-Unaware Relational Databases", 26th ACM SIGMOD International Conference on Management of Data, Beijing, China, 2007.

(3) IUP: Computational tools for Imaging and Analyzing Tissue Response

SINGAPORE-MIT ALLIANCE

SMA-2 PUBLICATIONS

Conference Publications

Lim K M & Li H, "A coupled boundary element/finite difference method for fluid-structure interaction with application to dynamic analysis of outer hair cells", The 4th MIT Conference on Computational Fluid and Solid Mechanics, MIT, Boston, USA, 13-15 June 2007.

(4) IUP: Advanced Computational Image Analysis

Journal Publications

1. R Welsch & X Zhou, "Application of Robust Statistics to Asset Allocation Models", REVSTAT, Accepted, March 2007.
2. R Menjoge & R Welsch, "Comparing Variable Selection Methods in Gene Selection and Classification of Microarray Data", Interface 2006 – Computing Science and Statistics, Published, Vol. 38, 2006.
3. A Samarov, V Spokoiny & C Vial, "Component Identification and Estimation in Nonlinear High-dimensional Regression Models by Structural Adaptation", Journal of the American Statistical Association, Published, Vol. 100, pp. 429-445, Summer 2005.
4. J Zhou & J C Rajapakse, "Contextual modeling of brain activation on subcortical structures using a fuzzy framework", Neurocomputing, Accepted.
5. Y Wang & J C Rajapakse, "Contextual modeling of functional MR images with conditional random fields", IEEE Transactions on Medical Imaging, Published, Vol. 25, No. 6, pp. 804-812, June 2006.
6. A Kumar & J C Rajapakse, "Detection of activation in functional MR experiments based on power spectral density and HMM", Neural Computing and Applications, Accepted.
7. D Corne, G Fogel, J C Rajapakse & L Wang, "Editorial for the Special Issue: Soft Computing for Bioinformatics and Medical Informatics", Soft Computing, Accepted, February 2006.
8. L S Ho & J C Rajapakse, "Input encoding method for identifying transcription start sites in RNA polymerase II promoters by neural networks", Soft Computing, Published, Vol. 10, No. 4, pp. 331-337, February 2006.
9. X Zheng & J C Rajapakse, "Learning functional structure from fMR images", NeuroImage, Published, Vol. 31, No. 4, pp. 1601-1613, July 2006.
10. J Su, X Jiang, R Welsch, G Whitesides & P So, "Lithographic Regulation of Cellular Mechanical Properties I-Adhesion Area Dependence", Biophysical Journal, Accepted.
11. J Zhou & J C Rajapakse, "Modeling hemodynamic variability using fuzzy features for detecting brain activation from fMR time-series", Neural Computing and Applications, Accepted.
12. R G N Meegama & J C Rajapakse, "NURBS-based visualization of age-related diversity in cortical morphology", Journal of Visualization, Published, Vol. 9, No. 1, pp. 9-11, January 2006.
13. M N Nguyen & J C Rajapakse, "Two stage support vector machines for protein secondary structure prediction", International Journal of Data Mining and Bioinformatics, Published, Vol. 1, No. 3, January 2007.
14. M N Nguyen & J C Rajapakse, "Two-stage support vector regression approach for predicting accessible surface areas of amino acids", PROTEINS: Structure, Function and Bioinformatics, Published, Vol. 63, pp. 542-550, May 2006.

Conference Publication

SINGAPORE-MIT ALLIANCE

SMA-2 PUBLICATIONS

1. Pooja & J C Rajapakse, "Comparison of human and mouse pseudo genes", 2007 IEEE Symposium on Bioinformatics and Computational Biology (CIBCB 2007), Hawaii, April 2007.
2. J C Rajapakse & C Chen, "Computational grid for comparative genomics to identify conserved non-coding regions", The 3rd International Life Science Grid Workshop (LSGrid 2006), Yokohama, Japan, October 2006.
3. J Ma, M N Nguyen, G B Fogel & J C Rajapakse, "Determination of the relative importance of gene function or taxonomic grouping to codon usage bias using cluster analysis and SVM", 2006 IEEE Symposium on Bioinformatics and Computational Biology (CIBCB 2006), Toronto, September 2006.
4. C Chen & J C Rajapakse, "Grid-enabled BLASTZ", The 3rd International Life Science Grid Workshop (LSGrid 2006), Yokohama, Japan, October 2006.
5. M N Nguyen & J C Rajapakse, "Protein-protein interface residue prediction with SVM using evolutionary profiles and accessible surface areas", 2006 IEEE Symposium on Bioinformatics and Computational Biology (CIBCB 2006), Toronto, September 2006.

Edited Books

1. E Marchiori, J Moore & J C Rajapakse, "Evolutionary Computation, Machine Learning, and Data Mining in Bioinformatics (EvoBIO 2007)", Lecture Notes in Computer Science, Springer-Verlag.
2. Omondi & J C Rajapakse, "FPGA Implementations of Neural Networks", Springer Dordrecht Netherlands, Hardcover, ISBN: 0-387-28485-0, February 2006.
3. Y Zhang & J C Rajapakse, "Machine Learning in Bioinformatics", John Wiley and Sons, to appear in 2007.
4. J C Rajapakse, L Wong & R Acharya, "Pattern Recognition in Bioinformatics (PRIB 2006)", Lecture Notes in Bioinformatics, Springer-Verlag Berlin Heidelberg, ISBN: 3-540-37446-9, August 2006.
5. J C Rajapakse, B Schmidt & G Volkert, "Pattern Recognition in Bioinformatics (PRIB 2007)", Lecture Notes in Bioinformatics, Springer-Verlag.

Book Chapters

1. B Zheng & J C Rajapakse, "Effect of diffusion weighting and number of sensitizing directions on fiber tracking in DTI", I King et al (Eds), Neural Information Processing, Lecture Notes in Computer Science, Springer-Verlag, Berlin Heidelberg, LNCS 4234, pp. 102-109, 2006.
2. J Zhou & J C Rajapakse, "Extraction of fuzzy features for detecting brain activation from functional MR time-series", I King et al (Eds), Neural Information Processing, Lecture Notes in Computer Science, Springer-Verlag, Berlin Heidelberg, LNCS 4234, pp. 983-992, 2006.
3. A R Omondi, J C Rajapakse & M Bagjer, "FPGA Neurocomputers", A Omondi & J C Rajapakse (eds.), FPGA Implementation of Neural Networks, Kluwer Academic Publishers, Boston, pp. 1-34, 2006.
4. S L Ho & J C Rajapakse, "Graphical approach to weak motif recognition in noisy datasets", Jagath C Rajapakse, Limsoon Wong, Raj Acharya (Eds), Pattern Recognition in Bioinformatics, Lecture Notes in Computer Science (sub-series in Lecture Notes in Bioinformatics), Springer-Verlag, Berlin Heidelberg, LNCS 4146, pp. 23-31, 2006.
5. J C Rajapakse, M N Nguyen, S L Ho & Y Zhang, "Machine Learning in Bioinformatics: An introduction", Machine Learning in Bioinformatics, Y Zhang & J C Rajapakse (Eds.), John Wiley and Sons, in press, 2007.
6. J C Rajapakse & S L Ho, "Markov/neural model for eukaryotic promoter recognition", Machine Learning in Bioinformatics, Y Zhang & J C Rajapakse (Eds.), John Wiley and Sons, in press, 2007.

SINGAPORE-MIT ALLIANCE SMA-2 PUBLICATIONS

7. J C Rajapakse, L Wong & R Acharya, "Pattern recognition in bioinformatics: Introduction", Jagath C Rajapakse, Limsoon Wong, Raj Acharya (Eds), Pattern Recognition in Bioinformatics, Lecture Notes in Computer Science (sub-series in Lecture Notes in Bioinformatics), Springer-Verlag, Berlin Heidelberg, LNCS 4146, pp. 1-3, 2006.
8. N Sinha, M Saranathan, A G Ramakrishnan, J Zhou & J C Rajapakse, "Ultra-fast fMR imaging with high-fidelity activation map", I King et al (Eds), Neural Information Processing, Lecture Notes in Computer Science, Springer-Verlag, Berlin Heidelberg, LNCS 4233, pp. 361-368, 2006.

SINGAPORE-MIT ALLIANCE SMA-2 PUBLICATIONS

CE programme (AY 2006/2007)

Number of Research Projects with publications: 1 FRP and 3 IUPs

(A) Collaborative Publications with SMA-MIT Fellows

(1) FRP: Design-Simulate-Fabricate Micro-/Nano-fluidics for Cell and Biomolecule Manipulation

AY 2006/2007

Journal Publication

Duc Vinh Le, C Rosales, B C Khoo & J Peraire, "A coupled IIM-BEM numerical method for the optimization traps", Electrophoresis, In review.

(2) IUP: Effective Computation: Reduced Order Models and Uncertainty Management in Numerical Simulations

Journal Publications

D B P Huynh & A T Patera, "Reduced basis approximation and a posteriori error estimation for stress intensity factors", International Journal for Numerical Methods in Engineering, Submitted, 2006.

Conference Publication

1. S Ali, M Damodaran & K Willcox, "Approximate Low Dimensional Models based on Proper Orthogonal Decomposition for Black-Box Applications", Singapore-MIT Alliance (SMA) Annual Symposium, Singapore, 23-24 January 2007.
2. D B P Huynh, J Peraire, A T Patera & G R Liu, "Reduced basis approximation and a posteriori error estimation for Stress Intensity Factors: Application to Failure Analysis", Singapore-MIT Alliance (SMA) Annual Symposium, Singapore, 2007.

(3) IUP: Robust Optimization: A tractable approach to address optimization and equilibrium problems under uncertainty

Journal Publications

X Liu, G Perakis & J Sun, "A Robust SQP Method for Mathematical Programs with Linear Complementarity Constraints", Computational Optimization and Applications, Published, Vol. 34, pp. 5-33, 2006 (DOI: 10.1007/s10589-005-3075-y).

SINGAPORE-MIT ALLIANCE

SMA-2 PUBLICATIONS

CE programme (AY 2006/2007)

(B) Non-collaborative Publications

(1) FRP: Design-Simulate-Fabricate Micro-/Nano-fluidics for Cell and Biomolecule Manipulation

AY 2006/2007

Journal Publications

1. N C Nguyen, A T Patera & J Peraire, "a 'Best Points' interpolation method for efficient approximation of parametrized functions", Accepted, 2006.
2. D Willis, J Peraire & J White, "A Combined pFFT-Multipole Tree Code, Unsteady Panel method with Vortex Particle Wakes", International Journal of Numerical Methods in Fluids, Accepted, 2007.
3. S Y Wang, K M Lim, B C Khoo & M Y Wang, "A Geometric Deformation Constrained Level Set Method for Shape and Topology Optimization", CMES-Computer Modeling in Engineering and Sciences, Published, Vol. 18, No. 3, pp. 155-181.
4. Z J Tan, "Adaptive Moving Mesh Methods for Two-dimensional Resistive Magneto-hydrodynamic PDE Models", computers and Fluids, Accepted, 2007.
5. Z J Tan, K M Lim & B C Khoo, "An Adaptive Mesh Redistribution Method for the Incompressible Mixture flows Using Phase-Field Model", Journal of Computational Physics, to appear.
6. N C Nguyen & J Peraire, "An efficient reduced-order modeling approach for nonlinear parametrized partial differential equations", International Journal for Numerical Methods in Engineering, In review.
7. S Y Wang, K M Lim, B C Khoo & M Y Wang, "An Extended Level Set Method for Shape and Topology Optimization", Journal of Computational Physics, Published, Vol. 221, pp. 395-421, 2007.
8. J Voldman, "Engineered systems for the physical manipulation of single cells", Biotechnology, Published, Vol. 17, No. 5, pp. 532, August 2006.
9. Abgrall P, Low L N & Nguyen N T, "Fabrication of Planar Nanofluidic Channels in a Thermoplastic by Hot-Embossing and Thermal Bonding", Lab on a Chip, Accepted, January 2007.
10. K M Lim, X He & S P Lim, "Fast Fourier transform on multipoles (FFTM) algorithm for Laplace equation with direct and indirect boundary element method", Computational Mechanics, Accepted, 2007.
11. Bui-Thanh T, Willcox K, Ghattas O & Van Bloemen Waanders B, "Goal-Oriented, Model-Constrained Optimization for Reduction of Large-Scale Systems", Journal of Computational Physics, Accepted, June 2007.
12. Gugercin S & Willcox K, "Krylov projection Framework for Fourier Model Reduction", Automatica, Accepted, April 2007.
13. M Rewienski & J White, "Model Order Reduction for Nonlinear Dynamical systems based on Trajectory Piecewise-linear approximations", Linear Algebra and Its Applications, Accepted, 2006.
14. Z Q Li & Y Zhang, "Monodisperse silica coated PVP/NaYF₄ nanocrystals with multicolor upconversion fluorescence emission", Angew. Chem. Int. Ed, Accepted, 2006.
15. J Bardhan, M D Altman, D J Willis, S M Lippow, B Tidor & J K White, "Numerical Integration Techniques for Curved-Element Discretizations of Molecule-Solvent Interfaces", Journal of Chemical Physics, Accepted, 2007.

SINGAPORE-MIT ALLIANCE SMA-2 PUBLICATIONS

16. Fu J, Schoch R R, Stevens A L, Tannenbaum S R & Han J, "Patterned anisotropic nanofluidic sieving structure for continuous-flow separation of DNA and protein", *Nature Nanotechnology*, Published, Vol. 2, pp. 121, December 2006.
17. F Wang, D K Chatterjee, Z Q Li, Y Zhang, X P Fan & M Q Wang, "Synthesis of polyethylenimine/NaYF₄ nanoparticles with upconversion fluorescence", *Nanotechnology*, Accepted, 2006.

Conference Publications

1. K M Lim, "A fast algorithm based on fast Fourier transform (FFT) and multipoles", *Challenges in Computer Simulations: Bridging the time and length scales*, Accepted, July 2007.
2. S Y Wang, B C Khoo & K M Lim, "A meshfree method for fluid flow simulation", *IMS Workshop on Multiphase Physical Flow and Application*, Accepted, March 2007.
3. S Y Wang, K M Lim & B C Khoo, "A Reliable and Efficient Flat Shell Element for Simulating the Large Deformation of Living Cells", *Challenges in Computer Simulations: Bridging the time and length scales*, Accepted, July 2007.
4. S Kuo & J White, "A Spectrally Accurate Integral Equation Solver for Molecular Surface Electrostatics", *IEEE Conference On Computer-Aided Design*, Accepted, November 2007.
5. Z J Tan, K M Lim & B C Khoo, "Calculations of a phase field model for the mixture of two incompressible fluids on a dynamically adaptive grid", *7th World Congress on Computational Mechanics*, Hyatt Regency, Los Angeles, USA, 16-22 July 2006.
6. Fu J P, Reto Schoch & Han J Y, "Continuous-flow Biomolecule Size Separation through Patterned Anisotropic Nanofluidic Sieving Structure", *Micro TAS 2006*, Tokyo, Japan, 5-9 November 2006 (Oral talk, proceedings Vol. 1, pp. 519-521).
7. S Johnson, S Boyd, Y Avneil & J White, "Design Tools for Emerging Technologies", *International Conference on Simulation of Semiconductor Processes and Devices (SISPAD)*, Accepted, September 2006, Invited.
8. J R Kovac & J Voldman, "Facile Image-based Cell Sorting Using OPTO-FluCS (Opto-fluidic cell sorting)", *Micro TAS 2006*, Tokyo, Japan, November 2006.
9. X He, K M Lim & S P Lim, "Fast Fourier transform on multipoles (FFTM) algorithm for Laplace Equation with direct and indirect BEM", *2nd Asia-Pacific International Conference on Computational Methods in Engineering*, Accepted, November 2006.
10. J Voldman, "Microsystems for measuring and manipulation cells", *NanoBio Tokyo 2006*, Tokyo, Japan, December 2006.
11. Bui-Thanh T, Willcox K & Ghattas O, "Model Reduction for Large-Scale systems with High-Dimensional Parametric Input Space", *48th AIAA Structures, Structural Dynamics and Materials Conference*, Waikiki, Hi, AIAA Paper 2007-2049, April 2007.
12. Robinson T, Willcox K, Eldred M & Haines R, "Multifidelity Optimization for Variable-Complexity Design", *11th AIAA Multidisciplinary Analysis and Optimization Conference*, Accepted, September 2006.
13. Reto Schoch, Jianping Fu & Jongyoon Han, "Nanofluidic Device for Continuous-Flow size- or Charge-Based Separation of Native Proteins", *MSB (Microscale Bioseparation) 2007*, Vancouver, Canada, January 2007.
14. Robinson T, Eldred M, Willcox K & Haines R, "Strategies for Multi-fidelity Optimization with Variable Dimensional Hierarchical Models", *1st Multidisciplinary Design Optimization Specialist Conference*, Accepted, May 2006.

SINGAPORE-MIT ALLIANCE

SMA-2 PUBLICATIONS

(2) IUP: Effective Computation: Reduced Order Models and Uncertainty Management in Numerical Simulations

Journal Publications

1. A Edelman, "A linear-time algorithm for evaluating series of Schur functions", to be submitted.
2. G R Liu, K Y Dai & T T Nguyen, "A smoothed finite element method for mechanics problems", Computational Mechanics, Published, Vol. 39, pp. 859-877, 2007.
3. D B P Huynh, G Rozza, S Sen & A T Patera, "A Successive Constraint Linear Optimization Method for Lower Bounds of Parametric Coercivity and Inf-Sup Stability Constants", M3Az CR Acad Sci Paris, Submitted, 2006.
4. S Ali & M Damodaran, "Black-Box Reduced-Order Predictions of Engineered Systems Using proper Orthogonal Decomposition with Interpolation", Computer Methods in Applied Mechanics and Engineering, Accepted, March 2007.
5. K Y Dai & G R Liu, "Free and forced vibration analysis using the smoothed finite element method (SFEM)", Journal of Sound and Vibration, Published, vol. 301, pp. 803-820, 2007.
6. Strang G. & B Parlett, "Matrices with prescribed Ritz values", Linear algebra and Its Applications 2007, Accepted, 2007.
7. Strang G, "Maximum area and minimum cuts in the plane", Journal of Global Optimization, Accepted, 2007.
8. Strang G, "Maximum Area With Minkowski Measures of Perimeter", Proc. Royal Soc. Of Edinburgh, Accepted, 2007.
9. Loana Dumitriu, A Edelman & Gene Shuman, "MOPS: Multivariate Orthogonal Polynomials (Symbolically)", Journal of symbolic computation, Submitted.
10. B Sutton & A Edelman, "The beta-Jacobi matrix model, the CS decomposition, and generalized singular value problems", Found. Comput. Math., Submitted.

Conference Publications

N C Nguyen & J Peraire, "An interpolation method for the reconstruction and recognition of face images", The Second International Conference on Computer Vision Theory and Applications (VISAPP), Barcelona, Spain, March 2007.

(3) IUP: Advanced Optimization Methods: Theory and Computation for Emerging Applications

Journal Publications

1. P Biswas, K C Toh & Y Ye, "A distributed SDP approach for large scale noisy anchor-free graph realization with applications to molecular conformation", Submitted.
2. Zheng-Jian Bai, Delin Chu & Defeng Sun, "A dual optimization approach to inverse quadratic eigenvalue problems with partial eigenstructure", SIAM Journal on Scientific Computing, to appear.
3. Z H Huang & J Sun, "A Non-Interior continuation Algorithm for the PO or P*-LCP with Strong Global and Local Convergence Properties", Applied Mathematics and Optimization, to appear.
4. K C Toh, "An inexact primal-dual path-following algorithm for convex quadratic SDP", Mathematical Programming, to appear.

SINGAPORE-MIT ALLIANCE SMA-2 PUBLICATIONS

5. Zi Xian Chan & Defeng Sun, "Constraint nondegeneracy, strong regularity and nonsingularity in semidefinite programming", Submitted.
6. Houduo Qi & Defeng Sun, "Correlation stress testing for value-at-risk: an unconstrained convex optimization approach", Submitted.
7. K C Toh, R H Tutuncu & M J Todd, "Inexact primal-dual path-following algorithms for a special class of convex quadratic SDP and related problems", Pacific Journal of Optimization, to appear.
8. D Sun & J Sun, "Loewner's operator and spectral functions in Euclidean Jordan algebras", Submitted.
9. P Biswas, T C Liang, K C Toh, T C Wang & Y Ye, "Semidefinite programming approaches for sensor network localization with noisy distance measurements", IEEE Transactions on Automation Science and Engineering, Published, Vol. 3, pp. 360-371, 2006.
10. J Sun, L W Zhang & Y Wu, "Some Properties of the Augmented Lagrangian in Nonlinear Semidefinite Optimization", Journal of Optimization Theory and Applications, to appear.

Conference Publications

1. Pablo Parrillo, "Polynomial Optimization", International Conference on Continuous Optimization (II), Hamilton, Canada, August 2007.
2. K C Toh, "SDP computation for large scale problems", International Symposium on Mathematical Programming, Rio De Janeiro, Brazil, August 2006.

(4) IUP: Robust Optimization: A tractable approach to address optimization and equilibrium problems under uncertainty

Journal Publications

1. X Chen, M Sim, P Sun & J Zhang, "A Linear-Decision Based approximation Approach to Stochastic Programming", Operations Research, Accepted.
2. C Wang, C J Ong & M Sim, "Constrained linear system with disturbances: stability under disturbance feedback", Submitted, 2006.
3. J Shu & J Sun, "Designing the Distribution Network for an Integrated Supply Chain", Journal of Industrial and Management Optimization, Published, vol. 2, pp. 239-249, 2006.
4. W Chen, M Sim, J Sun & C P Teo, "From CVaR to uncertainty sets, implications in joint chance constrained optimization", Submitted, 2007.
5. W Chen & M Sim, "Goal Driven Optimization", Operations Research, Accepted.
6. J S Pang & J Sun, "Nash Equilibria with Piecewise Quadratic Costs", Pacific Journal of Optimization, Published, Vol. 2, pp. 679-692, 2006.
7. X Liu & J Sun, "Scenario Formulation of Multistage Stochastic Programs and the Homogeneous Self-dual Interior Point method", INFORMS Journal on Computing, Published, Vol. 18, pp. 444-454, 2006.
8. Y He & J Sun, "Second Order Sufficient Conditions for Error Bounds in Banach Spaces", SIAM Journal on Optimization, Published, Vol. 17, pp. 795-805, 2006.

SINGAPORE-MIT ALLIANCE SMA-2 PUBLICATIONS

MST programme (AY 2006/2007)

Number of Research Projects with publications: 1 FRP and 4 IUPs

(A) Collaborative Publications with SMA-MIT Fellows

(1) FRP: Manufacturing Processes, Equipment and Controls for the Production of Polymer-based Microfluidic Devices

AY 2006/2007

Journal Publications

1. Li S G, Fu G, Reading I, Tor S B, Loh N H, Chaturvedi P, Yoon S F & Youcef-Toumi K, "Dimensional Variation in Production of High-Aspect-Ratio Micro-Pillars Array by Micro Powder Injection Molding", Applied Physics A, Accepted, 2007.
2. Lam Y C, Tran D V, Zheng H Y, Wong B S & Hardt D E, "Direct Observation of Thermal Conduction in Crystalline Silicon Irradiated by Femtosecond Laser Pulses", Applied Physics Letter, Submitted, 2006.
3. L P Yeo, Y C Lam, Mary B Chan-Park, S C Joshi & D E Hardt, "Non-linear elastic analysis of peel demolding of high aspect ration polymeric micro-patterning", Journal of Micromechanics and Microengineering, Submitted, 2006.

Conference Publications

1. Y W Loke, S B Tor, J H Chun, N H Loh & D E Hardt, "Comparison between Amorphous Metallic Alloy and Silicon as Molding Insert for Micro Injection Molding of Polymers", ANTEC 2007 – The 65th Annual Technical conference & Exhibition, Cincinnati, OH, 6-11 May 2007 (Society of Plastics Engineers, pp. 1980-1984).
2. Shilpiekandula V, D J Burns, K Youcef-Toumi, L Shiguang, I Reading & S F Yoon, "Fusion of Metrology Data for High-Volume Large-Scale Manufacturing of Polymer-Based Microfluidic Devices", Second International Micromanufacturing Conference, Clemson University, Accepted, September 2007.
3. G Fu, I Reading, P Chaturvedi, S G Li, S B Tor, S F Yoon and K Youcef-Toumi, "Investigation of the Dimensional Variation of Microstructures Through the uMIM Process", 4th International Symposium on Nanomanufacturing, Massachusetts Institute of Technology (MIT), Boston, USA, 1-3 November 2006 & Singapore-MIT Alliance Annual Symposium, Singapore, 23-24 January 2007, pp. 215-220.
4. Loke Y W, Tor S B, Chun J H, Loh N H & Hardt D E, "Micro Injection-Molding of cyclic Olefin Copolymer Using Metallic Glass Insert", Singapore-MIT Alliance (SMA) Annual Symposium, Singapore, 23-24 January 2007.

Books, Monographs & Chapters

Liu Y, Loh H T, Youcef-Toumi K & Tor S B, "Handling of Imbalanced Data in Text Classification: Category Based Term Weights", Text Mining and Natural Language Processing, Anne Kao & Steve Poteet (eds), Springer London, 2006.

(2) IUP: Dynamic Pricing and Revenue Mgmt for Air Cargo Transportation

AY 2006/2007

Journal Publications

SINGAPORE-MIT ALLIANCE

SMA-2 PUBLICATIONS

Michelle L T Cheong, Rohit Bhatnagar & Stephen C. Graves, "Logistics Network Design with Supplier Consolidation Hubs and Multiple Shipment Options", Journal of Industrial and Management Optimization, Vol. 3, No. 1, pp. 51-69, February 2007.

Conference Publications

Cheong M, Bhatnagar R & Stephen C G, "Airfreight Pricing and discounts for Dense and volumetric Cargoes", INFORMS International, Hong Kong, China, 25-28 June 2006.

(3) IUP: Design and Planning of Supply Chains for Nano-Scale Devices

AY 2006/2007

Conference Publications

Wang Yexin, Bhatnagar R, Stephen C Graves, T D White, "A Dual Channel Vendor-Buyer with Minimum Purchase Commitment", Singapore-MIT Alliance (SMA) Annual Symposium, Singapore, 2007.

(4) IUP: Quality / Quantity Research – Theoretical Studies

AY 2006/2007

Conference Publications

Yang R L, Chen C F, Subramaniam V & Gershwin S B, "Setting real time WIP levels in Tandem Line Production Systems", The International Conference on Manufacturing Science and Technology (ICOMAST 2006), Melaka, Malaysia, 28-30 August 2006.

(5) IUP: Quality / Quantity Research – Empirical and Numerical Studies

AY 2006/2007

Journal Publications

1. Qi Chao, Appa Iyer Sivakumar & Stanley B Gershwin, "An Efficient New Job Release Control Methodology", International Journal of Production Research, Accepted.
2. Qi Chao, Appa Iyer Sivakumar & Stanley B Gershwin, "Impact of Maintenance Scheduling for a Machine with Multiple Deterioration Quality States", International Journal of Reliability, Quality and Safety Engineering, Submitted.
3. Qi Chao, Appa Iyer Sivakumar & Stanley B Gershwin, "Job Release Control in Semiconductor Wafer Fabrication", IEEE Transactions on Semiconductor Manufacturing, Submitted.
4. Qi Chao, Appa Iyer Sivakumar & Stanley B Gershwin, "Machine Quality State Based Maintenance Scheduling", IIE Transactions, Submitted.
5. Qi Chao, Appa Iyer Sivakumar & Stanley B Gershwin, "Maintenance Scheduling for Metal Etcher in Semiconductor Wafer Fabrication", IEEE Transactions on Reliability, Submitted.

Conference Publications

1. Qi Chao, Appa Iyer Sivakumar & Stanley B Gershwin, "Preventive Maintenance Scheduling for a Machine with Multiple Quality States", Singapore-MIT Alliance (SMA) Annual Symposium, Singapore, 2007.

SINGAPORE-MIT ALLIANCE SMA-2 PUBLICATIONS

2. Qi Chao, Appa Iyer Sivakumar & Stanley B Gershwin, "Simulation Experimental Investigation on Job Release Control in Semiconductor Wafer Fabrication", Winter Simulation Conference 2007, USA, 2007.

SINGAPORE-MIT ALLIANCE

SMA-2 PUBLICATIONS

MST programme (AY 2006/2007)

(B) Non-collaborative Publications

(1) FRP: Manufacturing Processes, Equipment and Controls for the Production of Polymer-based Microfluidic Devices

AY 2006/2007

Journal Publications

1. Wei Y, Su C & Anand L, "A computational study of the mechanical behavior of nanocrystalline fcc metals", *Acta Materialia*, Published, Vol. 54, Issue 12, pp. 3177-3190, July 2006.
2. Wei Y & Anand L, "A constitutive model for powder-processed nanocrystalline metals", *Acta Materialia*, Published, Vol. 55, No. 3, pp. 921-931, 2007.
3. Su C & Anand L, "A constitutive theory for metallic glasses at high homologous temperatures", *Acta Materialia*, In press, 2007.
4. Gurlin M E & Anand L, "A gradient single-crystal plasticity with free energy dependent on dislocation densities", *Journal of the Mechanics and Physics of Solids*, In press, 2007.
5. Gurtin M E & Anand L, "A gradient theory for single-crystal plasticity", *Modeling and Simulations in Materials Science and Engineering*, Published, Vol. 14, pp. 1-8, 2007.
6. Appa Iyer S & Mathirajan M, "A Literature Review, Classification and Simple Meta-Analysis on Scheduling of Batch processors in Semiconductor", *International Journal of Advanced Manufacturing Technology* (United Kingdom), Accepted, 2006 (DOI: 10.1007/s00170).
7. J X Gao, L P Yeo, Mary B Chan-Park, J M Miao, Y H Yan, J B Sun, Y C Lam & C Y Yue, "Anti-stick post-passivation of high aspect ratio silicon molds fabricated by deep reactive ion etching", *Journal of Microelectromechanical Systems*, Published, Vol. 15, No. 1, pp. 84, 2006.
8. Tay B Y, Liu L, Loh N H, Tor S B, Murakoshi Y & Maeda R, "Characterization of Metallic Micro Rod Arrays Fabricated by uPIM", *Material Characterization*, Accepted, 2006.
9. Gilbert R J, H Park, M Rasponi, A Redaelli, B Gellman, K A Dasse & T Thorsen, "Computational and functional evaluation of a microfluidic blood flow device", *ASAIOJ*, In press, 2007.
10. L P Yeo, Y H Yan, Y C Lam & Mary B Chan-Park, "Design of Experiment for optimization of plasma-polymerized Octafluorocyclobutane coating on very high aspect ratio silicon molds", *Langmuir*, Submitted, 2006.
11. Rzepniewski A K & Hardt D E, "Development of General Multivariable Run-by Run Control Methods with Application to a Sheet Forming Process", *International Journal of Machine Tools & Manufacture*, Accepted, October 2007.
12. Pham H H, Chen I M & Yeh H C, "Micro-Manipulation System Design Based On Selective-Actuation Mechanisms", *International Journal of Robotics Research*, Published, Vol. 25, No. 2, pp. 171-186, 2006.
13. Su C & Anand L, "Plane strain indentation of a Zr-based metallic glass: Experiments and numerical simulation", *Acta Materialia*, Published, Vol. 54, pp. 179-189, 2006.
14. Shilpiekandula V, "Progress through mechanics: Small-scale Gaps", *Mechanics*, Published, Vol. 35, No. 9-10, pp. 3-6, September 2006.
15. Li J R, Khoo L P & Tor S B, "RMINE: A Rough Set Based Date Mining prototype with Incomplete Data for Condition-based Fault diagnosis", *Journal of Intelligent Manufacturing*, Published, Vol. 17, pp. 163-176, 2006.

SINGAPORE-MIT ALLIANCE SMA-2 PUBLICATIONS

16. Burns D J & Youcef-Toumi K, "Shortening Carbon Nanotube-Tipped AFM Probes", International Journal of Nanomanufacturing, Submitted, March 2007.
17. Dirckx M, Taylor H K & Hardt D E, "Tooling for Micro-and Nano- Imprinting and its Consequences for Manufacturing", International Journal of Nano- Manufacturing, Accepted, April 2007.

Conference Publications

1. Dirckx M, Taylor H K & Hardt D E, "High Temperature De-Molding for Cycle Time Reduction in Hot Embossing", ANTEC, Cincinnati, April 2007.
2. Park H, M A Rasponi, K A Dasse, B Gelman, B F Monzyk, P M Martin, R Gilbert & T Thorsen, "Microfluidic respiratory device based on photolytic oxygen generation from whole blood", Biomedical Engineering Society (BMES) Annual Fall Meeting, Chicago, IL, 13 October 2006.
3. Pham H H & Chen I M, "Micro-Manipulator Design based on Selectively Actuated Flexure Parallel mechanisms", IEEE Conference of Robotics, Automation, Mechatronics (RAM), Bangkok, Thailand, 2006.
4. Mazzeo A D, Dirckx M & Hardt D E, "Process Selection for Microfluidic Device Manufacturing", ANTEC, Cincinnati, April 2007.
5. Dirckx M, Mazzeo A D & Hardt D E, "Production of Micro-Molding Tooling by Hot Embossing", 2007 International Manufacturing Science and Engineering Conference, October 2007.
6. Mazzeo A D, Dirckx M & Hardt D E, "Single-Step Through Hole Punching by Hot Embossing", ANTEC, Cincinnati, April 2007.

Books, Monographs & Chapters

1. Pham H H & Chen I M, "Design and Modeling of a Selective-Actuation XYZ Flexure Parallel Mechanism", Experimental Robotics IX (Ed M H Ang, O Khatib), Chapter 6 – Manipulation, Springer-Verlag, NY, USA, 2006.
2. Krishnaswamy K N, Appa Iyer S & Mathirajan M, "Research Methodology: Integration of Methods and Techniques", Pearson Education, In print, 2006.

(2) IUP: Dynamic Pricing and Revenue Mgmt for Air Cargo Transportation

Journal Publication

Jeremie Gallien, Rohit Bhatnagar, Teo Chee Chong & J W Foreman, "Dynamic Supply Routing with Customer Experience Cost", Research Paper, Accepted.

(3) IUP: Quality/Quantity Research-Empirical and Numerical Studies

Conference Publication

Qi Chao & Appa Iyer Sivakumar, "Job Release Based on WIPLOAD Control in Semiconductor Wafer Fabrication", 8th Electronics Packaging Technology Conference (EPTC 2006), Singapore, 2006.

SINGAPORE-MIT ALLIANCE SMA-2 PUBLICATIONS

CPE programme (AY 2006/2007)

Number of Research Projects with publications: 1 FRP and 4 IUPs

(A) Collaborative Publications with SMA-MIT Fellows

- (1) IUP: Mechanistic Understanding of Crystallization of Model Compounds for the Pharmaceutical Industry

AY 2006/2007

Journal Publications

Deng Rensheng, Wang Chi-Hwa, Smith Kenneth A, "Bubble behavior in a Taylor Vortex", Physical Review E, Published, Vol. 73, pp. 036306, 7 March 2006.

- (2) IUP: High Through-Put Sensing of Biological and Chemical Systems

AY 2006/2007

Conference Publications

D I C Wang, M Yap & G Wang, "Biologics Manufacturing in Singapore", 2nd SBMC in Singapore, Singapore, January 2007.

- (3) IUP: Stimuli-Responsive Self-Assembly for Dynamic Control of Separation Environments in Chemical and Pharmaceutical Processing

AY 2006/2007

Journal Publications

Tam, Hatton & Rajagopalan, "Redox-Responsive Self-Assembly Polymers for Separation of Chemical and Pharmaceutical Compounds".

- (4) IUP: Mechanism elucidation and application of global Transcriptional Machinery Engineering (gTME) to the modulation of the isoprenoid pathway for biosynthesis of pharmaceuticals

AY 2006/2007

Journal Publications

1. Ng J K, P K Ajikumar, G Stephanopoulos, H P Too, "DNA directed assembly probe for detecting DNA-protein interaction in microarray format", MIT DSpace, 2007, <https://dspace.mit.edu/bitstream/1721.1/30384/1/MEBCS007.pdf>.
2. N Jin Kiat, P K Ajikumar, G Stephanopoulos, H P Too, "RNA polymerase-promoter interaction profiling using ssDNA-dsDNA probe and surface addressable microarray", Manuscript, Under preparation.

SINGAPORE-MIT ALLIANCE SMA-2 PUBLICATIONS

CPE programme (AY 2006/2007)

(B) Non-collaborative Publications

(1) FRP: Molecular Engineering of Bio/Chemical Pathways & Process Science for the Pharmaceutical Industry

AY 2006/2007

Journal Publications

1. J Y Ying, "Design and Synthesis of Nanostructured Catalysts", Chem. Eng. Sci, Published, Vol. 61, pp. 1540-1548, January 2006.
2. Peters B, Beckham G & Trout B L, "Extensions to the Likelihood Maximization Approach for Finding Reaction Coordinates", Journal of Chemical Physics, Accepted, 7 July 2007.
3. S S Lee & J Y Ying, "Siliceous Mesocellular Form-Supported Chiral Bisoxazoline: Application to Asymmetric Cyclopropanation", J. Mol. Catal. A: Chem., Published, Vol. 256, pp. 219-224, June 2006.

(2) IUP: High Through-Put Sensing of Biological and Chemical Systems

AY 2006/2007

Conference Publications

1. D I C Wang, "Biotechnology in Asian Region", AAAP Conference, Boston, USA, June 2006.
2. D I C Wang, "Biotechnology in China and Singapore", ACS Presidential Symposium, San Francisco, CA, September 2006.
3. D I C Wang, "Impact of Micro- and Nano- Technologies in Biotech Processes", Biotech Process Overview, Milan, Italy, May 2006.
4. D I C Wang & B Olle, "Magnetic Nano-particles in Bioprocesses", Conference on Bioprocess Engineering, Wuhan, China, May 2006.

(3) IUP: Mechanism elucidation and application of global Transcriptional Machinery Engineering (gTME) to the modulation of the isoprenoid pathway for biosynthesis of pharmaceuticals

Journal Publication

1. D Klein-Marcuschamer, P K Ajikumar, G Stephanopoulos, "Engineering microbial cell factories for biosynthesis of isoprenoid molecules: beyond lycopene", Review.
2. Yong-Su Jin & Gregory Stephanopoulos, "Multi-dimensional gene target search for improving lycopene biosynthesis in Escherichia coli", Metabolic Engineering, In press, 2007.

(4) IUP: Stimuli-Responsive Self-Assembly for Dynamic Control of Separation Environments in Chemical and Pharmaceutical Processing

Conference Publication

Smeets D, L Bromberg, K A Smith & T A Hatton, "Photo-Responsive Polymers for Dynamic Protein Separations", AIChE, November 2006.