



2011 Silicon-Valley Magnetic Symposium

Co-hosted: CAISS and CASPA



Auditorium – Building #10, Cadence Design Systems
June 18th, 2011, Saturday

Rising demand for data storage and hand-held devices has provided tremendous opportunities for technology and business development in hard-disk drive, solid-state drive, MRAM, and sensor industries. In a world of constant technological innovation, what opportunities and challenges lie ahead for HDD, SSD, MRAM, and Sensor industries? Throughout this conference, renowned industry experts will share their views and insights with audiences about technology advancements and future market opportunities in HDD, SSD, MRAM, and Sensor industries. Attendees will also have the opportunity to interact with featured speakers and fellow industry members, facilitating conversations that can promote valuable exchanges of ideas. Symposium website <http://www.caiss.org>

Symposium Agenda (12:30-5:30PM)

12:30—1:00 pm Sign-in and registration

1:00—1:15 pm Opening speech and VIP Introduction

HDD Session:

1:15 – 1:45 pm Keynote: “Progress and Outlook for HDD”, Dr. Xiaodong Che, VP of HitachiGST

1:45 – 2:15 pm Panel Discussion: Dr. Sining Mao, VP of WD; Dr. Herbert Lin, VP of WD;
Dr. Currie Munce Jr, VP of HitachiGST; Mr. Tim Ding, VP of LAMD

MRAM Session:

2:15 – 2:45 pm Keynote: “Progress and Outlook for MRAM”, Dr. Yiming Huai, VP of Avalanche

2:45 – 3:15 pm Panel Discussion: Prof. Xiufeng Han, CAS; Prof. Yiran Chen, Univ. of Pittsburgh
Mr. John Yu, Founding Partner & Managing Director, WestSummit Capital

3:15 – 3:30 pm **Break**

Sensor Session:

3:30 – 4:00 pm Keynote: “Magnetic BioSensor”, Prof. Shan Xiang Wang, Stanford University

4:00 – 4:30 pm Panel Discussion: Dr. Hing Wong, Walden International VC; Dr. Sean Ding, CASPA;
Dr. Kevin Shaw, CTO, Sensor Platforms

SSD Session:

4:30 – 4:50 pm “Market and application overview for NAND Flash”, Mr. Yuping Chung, Forward Insights

4:50 – 5:10 pm “Are Hybrid HDDs ready to deliver the promise: comparable SSD performance with
affordable HDD cost?”, Mr. Thomas Su, Sr. Director of Link-A-Media Devices

5:10 – 5:30 pm “Enterprise SSD applications, challenges and trends”, Dr. Currie Munce Jr, VP of HGST

5:30 pm **Adjourn**

6:00 pm Optional networking dinner (RSVP required)

Keynote Speakers' Biography:

Dr. Xiaodong (Carl) Che, VP of Global Recording Subsystems Group, HitachiGST



Dr. Xiaodong (Carl) Che received his Ph.D in condensed matter physics from UC San Diego in 1991. He then worked at the Center for Magnetic Recording Research as a post-doctoral fellow under Prof. Neal Bertram studying magnetic recording physics. In 1993, he moved to the Bay area to start his engineering career. He is currently managing the world-wide recording sub-system group at Hitachi-Global Storage Technology, which is responsible for mobile, desktop, and server HDD product recording sub-system development. Dr. Che holds numerous patents and has published more than twenty technical papers in data storage technology. In 2007, He became the adjunct professor at Fudan University, setting up a thermal assisted recording lab and coaching Ph.D candidates conducting recording physics experiments on the spindrive. Dr. Che is a founding board member of CAISS and a senior IEEE magnetic society member. He is optimistic of the HDD industry's future and strongly believes that HDD data storage will play a critical role in the future digital social infrastructure.

Dr. Yiming Huai, VP of Technology, Avalanche Technology



Dr. Yiming Huai has served as VP of Technology for Avalanche Technology since 2008. Dr. Huai co-founded Grandis in 2002, serving as CTO and VP of Engineering. While at Grandis, Dr. Huai successfully raised over \$25M in private and government funding (including DARPA STT RAM and NIST ATP). He also established the Grandis experienced engineering team and patent portfolio. He has played a critical role for Grandis in establishing strategic partnerships with Renesas and Hynix. Prior to Grandis, Dr. Huai served as Senior Director of Thin Film of Manufacturing at Read-Rite Corporation (now Western Digital), where he led the development and volume production of industry leading GMR heads for hard disk drives from 1996 to 2002. He previously worked as a Staff Scientist at the Lawrence Livermore National Laboratory (LLNL) and as a post-doctoral fellow at the National Research Council in Ottawa, Canada. He received M.S. and Ph.D. degrees, both in Physics, from the University of Montreal in Canada. He has published over 100 papers in scientific journals and holds over 80 U.S. patents. He has given more than 40 invited talks on STT-MRAM technology over the last eight years. In 1996, he received the prestigious R&D 100 Award with his peers for his outstanding work on Ultra-High Density Magnetic Sensors.

Prof. Shan Xiang Wang, Director of Center for Magnetic Nanotechnology, Stanford University



Dr. Wang currently serves as the director of the Stanford Center for Magnetic Nanotechnology and a Professor of Materials Science & Engineering, jointly of Electrical Engineering at Stanford University, and by courtesy, a Professor of Radiology at Stanford School of Medicine. He is a Co-PI of the Stanford-led Center for Cancer Nanotechnology Excellence and Translation (CCNE-T), and the principal investigator of the Rapid and Accurate Proteomic Index Dosimetry (RAPID) Consortium. He is also with the Geballe Laboratory for Advanced Materials, and is affiliated with Stanford Bio-X Program, Cancer Institute and Cardiovascular Institute. His research interests lie in magnetic nanotechnologies and information storage in general and include magnetic biochips, in vitro diagnostics, magnetic nanoparticles, nano-patterning, spin electronic materials and sensors, magnetic inductive heads, as well as magnetic integrated inductors and transformers. He has published over 187 papers, and holds 28 patents (issued and pending) on these subjects. Dr. Wang contributed two books and three book chapters on magnetic biochip, nanoparticles, information storage, and embedded inductors, respectively, and gave more than 70 invited presentations in major scientific conferences and meetings,

and his work received media coverage from ABC TV, Economist, San Jose Mercury News, Technology Review, EE Times, ScienceWatch, People's Daily and more. Dr. Wang was an inaugural Frederick Terman Faculty Fellow at Stanford University (94-97), an IEEE Magnetics Society Distinguished Lecturer (2001-2002), and was elected an IEEE Fellow (2009). He also received the Gates Foundation Grand Challenge Explorations Award (2010), the Obducat Prize (2007-8), a National Academies Keck Futures Initiative Award (2006), an IBM Partnership Award (1999), and was selected to the CUSPEA program organized by Nobel Laureate T. D. Lee in 1986. His students have won BMEidea Competition 1st Prize, IEEE President's Change the World Competition 1st Prize (2009), and IEDM Best Student Paper award (2006). Prof. Wang received the B.S. degree in physics from the University of Science and Technology of China in 1986, the M.S. in physics from Iowa State University in 1988, and the Ph.D. in electrical and computer engineering from the Carnegie Mellon University (CMU) at Pittsburgh in 1993.

Mr. Thomas Su, Senior Director, Research and Development, Link-A-Media Devices



Mr. Thomas Su has over two decades of technical, program management and entrepreneurial experience in storage industry including traditional HDD, removable cartridge HDD, mobile HDD, SSD and hybrid HDD. Thomas has served as Senior Director of Research and Development for Link-A-Media Devices (LAMD) since 2008. LAMD is the new leader in developing and manufacturing custom System-on-Chip (SOC) solutions for peripheral data storage devices. They include world's first mass produced low density parity check (LDPC)HDD SoC, multi-level cell (MLC) enabling digital signal processing (DSP)enterprise SSD SoC and high performance hybrid HDD SoC. In early 2000, Thomas was the founder/president/CEO of Riospring, which specialized in the technology and product development for the ultra-small form factor hard disk drives used in MP 3 players, USB drives and digital cameras. In late 1990, Thomas was the founder/VP of Engineering at Castlewood System, which delivered world's first removable cartridge disk drives with magneto resistive (MR) head technology. Thomas received his MSEE from San Jose State University and his BSEE from University of Washington.

Mr. Yuping Chung, Sr. Market Analyst, Forward Insights



Mr. Yuping Chung has more than 20 years of experiences in marketing and business development for semiconductor memories and data storage devices. He serves as a senior analyst at Forward Insights, a consulting firm that specializes in market and intelligence for semiconductor memories, emerging memory technologies, and solid state storage. Mr. Chung also serves as Board of Director for CASPA. Mr. Chung has held marketing director and management positions at SST, STEC, Etron, Mitsubishi, and others. Most recently at SST, he focuses on new product development of solid state drives for both client and enterprise data storage using advanced ASIC controllers and leading edge NAND technologies. Mr. Chung also launched high reliability SSD for industrial and automotive applications. Mr. Chung published several whitepapers about designing and selecting SSDs in trade journals; he was also a speaker in Flash Memory Summit and Denali Memcom. Mr. Chung received his MSEE from Oklahoma State University and his bachelor degree from National Taiwan University.

Dr. Currie Munce Jr, VP of Research, HitachiGST



Dr. Currie Munce is Vice President of Research for Hitachi Global Storage Technologies. In his position, Dr. Munce is responsible for directing all research and advanced technology integration work for Hitachi GST, as well as guiding its technical strategy. He has worked for Hitachi GST since its inception on January 1, 2003 when it was created from the merger of IBM's and Hitachi's HDD businesses. During that tenure he has additionally held positions managing the US HDD Development Labs and being General Manager of the Enterprise Business Group. In this latter role he was responsible for establishing the joint development partnership with Intel to create an Enterprise-class SSD. Prior to joining Hitachi GST, Dr. Munce worked for IBM Research for over 17 years. He has served on the Board of Directors for the Compact Flash Association, Executive Council for Advanced Storage Technology Consortium, and Chairperson for the Corporate Affiliates Boards at the Jacobs School of Engineering at UCSD. He received his Bachelors degree in Applied Mechanics from UC San Diego, and his Masters and Ph.D. degree in Mechanical Engineering from Stanford University.

Panelists' Biography:

Dr. Sining Mao, VP of Device Technology Development, Western Digital



Dr. Sining Mao is currently Vice President, Device Technology Development, Magnetic Heads Operation, Western Digital, residing in Fremont, Calif. Prior to WD, he was Senior Director of Advanced Transducer Development at Seagate Recording Head Operation in Minneapolis, Minnesota. And he also served as R&D director at Seagate Ireland (Londonderry, NI) from 2004-2005. His research topics cover the advanced nanotechnologies including GMR, TMR and BMR, as well as writers for longitudinal and perpendicular recording. He graduated with bachelor's degree from the Department of Physics at Peking University and MS From Peking University/Institute of Physics, Chinese Academy of Sciences, and before he obtained the doctorate degree from University of Maryland at College Park, USA, he spent three years at Tsinghua University, Beijing as a researcher and lecturer in Department of Modern Applied Physics. Dr. Mao has more than 170 scientific papers and fifty conference presentations. He is Senior Member of IEEE and referee for Applied Physics Letter, J. Applied Physics, and IEEE Transaction on Magnetics. He is also member of the IEEE technical committee and also served on the organizing committee for MMM, Intermag, and TMRC. He has been Guest Professor of the Institute of Physics, Chinese Academia and Distinguished Researcher of DSI at Singapore. He has given invited talks at MRS, TMRC, PMRC, MMM, Intermag, Diskcon, and many universities around the world on magnetic thin film materials and devices. He also owns 50 US and international issued patents on magnetic thin films and devices.

Dr. Herbert Lin, VP of Engineering for Magnetic Heads Operations, Western Digital



Dr. Herbert Lin is Vice President of Engineering for Magnetic Heads Operations in Western Digital Corp. In his current role, he oversees Product Engineering, Slider and HGA Development, Mechanical Integration, Testing, Material Science Lab as well as Advanced Technology. Prior to his current position, he managed Recording Sub-System group in WD's HDD Operations, which was responsible for all segments of HDD product integration in the areas of Heads/Media, Channel, Preamp and Interconnect. He served various engineering, management and executive roles in IBM, Maxtor and Hitachi-Global Storage Technology, in both advanced technology and product development areas. Dr. Lin has

numerous technical publications and patents. He received his Ph.D. in Physics from UC San Diego and B.S. in Material Science from University of Science and Technology of China.

Mr. Tim Ding, VP of Sales/Marketing, Link-A-Media Devices



Tim is Vice President of Sales/Marketing for Link-A-Media (LAMD) since May 2010. Tim is responsible for LAMD's Sales, Technical Marketing and Customer Service Functions. Prior to LAMD, Tim was Director of Sales/Marketing for LSI's HDD and SSD storage business. At LSI, Tim successfully built top performing account teams, securing major design wins and delivering strong revenue growth. Prior to LSI, Tim held various sales and engineering management positions at Agere, Seagate and Castlewood Systems. Tim holds an MSEE from Santa Clara University, MS Physics from University of Texas at Dallas Space Science Center, and a BS degree in Space Physics from Peking University, Beijing, China.

Prof. Xiufeng Han, Institute of Physics, Chinese Academy of Sciences



Professor, Head of M02 Group in Institute of Physics, CAS. His main research field is Spintronic Materials, Physics, and Devices. He has published over 170 scientific journal articles and holds 30 authorized patents. He graduated from Lanzhou University in 1984 and obtained the PhD from Jilin University in 1993. As a visiting scholar during 01/1998--03/2002, he has worked at the Center of Brazilian Physical Research (Brazil), Tohoku University (Japan), University of New Orleans (USA), and Trinity College Dublin (Ireland). He obtained financial support of the Hundred Outstanding Young Researchers Projects from Chinese Academy of Science (CAS) in 2000, the Outstanding Young Researcher Foundation from Natural Science Foundation of China (NSFC) in 2003, and the Outstanding Innovation Team Foundation together with his partners from NSFC in 2007 and 2010. His specialties and research content include (1) Magnetic-tunnel-junction (MTJ) materials & tunneling magneto-resistance (TMR) effects, magneto-sensitive sensors, and Nano-ring MRAM prototype devices; (2) Spin transfer torque (STT) effect in magnetic nanostructures; (3) Nanomagnetic thin films and giant magneto-resistance (GMR) multilayers; (4) Magnetic Nanowires and Nanotubes; (5) Rare-earth and transition metal intermetallic compounds and rare-earth permanent magnets (Homepage: <http://www.m02group.com>).

Prof. Yiran Chen, Department of ECE, Univ. of Pittsburgh



Yiran Chen received B.S. and M.S. in EE from Tsinghua University, China and Ph.D. in ECE from Purdue University, W. Lafayette, IN. Before he joined University of Pittsburgh in 2010, he worked with Synopsys and Seagate for five years. Dr. Chen's research interests include VLSI design, emerging electronic devices and sensors. He has published more than 70 technical publications, has 28 US patents and the other 32 applications. He served as the TPC members of many international conferences and the editors of some journals. As a key developer of PrimeTimeVX, Dr. Chen received "The hot 100 products of 2006" from EDN, "EDN 100 Hot Products Distinction" from Synopsys and the finalist of "Prestigious 2007 DesignVision Awards" from International Engineering Consortium (IEC). His works were nominated as best paper candidates in ISQED 2005, 2010, DATE 2010, ASPDAC 2011, and received best paper awards from ISQED 2008 and ISLPED 2010. His invention – "Spintronic Memristor", was reported by IEEE Spectrum in Mar. 2009.

Mr. John Yu, Founding Partner & Managing Director, WestSummit Capital



John is Founding Partner & Managing Director, WestSummit Capital. Before WestSummit, he has spent more than 20 years in software and semiconductor industry in technical, management and business roles. He was the co-founder and COO of Advanced Communication Devices (later acquired by UTStarcom, Nasdaq: UTSI); He is also co-founder & CTO of Viaquo as well as General Manager of Agatologic China. Prior to that, he worked at Silicon Graphics on various technologies related to compiler and tools. He got BS and MS degree in Electrical Engineering from Tsinghua University, China.

Dr. Kevin Shaw, Chief Technology Officer, Sensorplatforms



Kevin has over 19 years experience in sensor and MEMS. He was employee number 3 at Kionix, a leader in motion sensors and accelerometers, and was integral in establishing its MEMS inertial sensor and wafer-scale hermetic sealing operations. At Calient Optical Components, Kevin was critical in the development of its 382 mirror MEMS optical switch and defining new markets for its switching business. He is a prolific inventor having earned 24 U.S. patents in the fields of MEMS and inertial navigation. He is also an entrepreneur having cofounded and sold Ironwood Technologies, a company in the railroad technology sector. Kevin holds a BS and MS in Electrical Engineering and has earned a Doctorate from Cornell University for developments in MEMS and MEMS/IC integration methodologies. Kevin also holds a Masters from the Graduate School of Business at Stanford University where he is a Stanford Sloan Fellow.

Dr. Hing Wong, Managing Director, Walden International Venture Capitals



Hing focuses on semiconductors and clean technology, especially in China. Hing joined Walden International in 2005. Prior to joining WI, he spent fifteen years in the semiconductor industry in technical, management and business roles. He worked at IBM, Chromatic Research, and co-founded Silicon Access Networks, a network IC company where he served as VP VLSI Design and later in VP Business Development. Hing holds a Ph.D. degree in EECS from UC Berkeley, and studied in SiChuan University and Chinese University of Hong Kong for his undergraduate degrees.

Dr. Xianfeng Ding, Director of Marketing and Application, MEMSIC



Xianfeng has more than 10 years of experience in algorithm development, application engineering, and marketing development and application support in the semiconductor industry. Right now he serves as director of marketing and application for MEMSIC. Prior of that, Xianfeng Ding serve as application engineer manager in Bosch. Prior than Bosch, Xianfeng worked for STMicroelectronics in various roles, including algorithm development engineer, staff application engineer, principal application engineer. Graduate from graduate school of China university of science and technology, and got Ph.D in Electrical engineering. He got BS and MS degrees in Electrical engineering from Harbin Engineering University.