Symposium on

Advanced Power Electronics and Its Applications

Date: 5 September 2014 (Fri)
Time: 9:00-17:15
Medium: English (with simultaneous interpretation between English and Putonghua)
Fee: Free of Charge (inclusive of light lunch)
Venue: Charles K. Kao Auditorium, Hong Kong Science Park, Shatin, New Territories, Hong Kong
About the Symposium

The world has witnessed an immense boom in energy technology in recent years. As one of its key enabling technologies, power electronics never ceases its advance in efficiency, stability, reliability and flexibility among other things. Such requirements become even more stringent and challenging for high-power utility applications.

Power device and integration technologies play important roles in the development of advanced power electronics modules and products through innovations in structure, material and process. Power semiconductor switches must be properly integrated to effectively withstand thermal loads and ensure reliable operation under demanding conditions such as high temperature and high power. Likewise, novel architectures and control schemes have always served as the main force behind the advance in power electronics. They can be developed to address the barriers and take full advantage of new semiconductor devices and passive components. They can also be expressly designed to fulfill various application specifications.

This one-day symposium aims to share the progress of Advanced Power Electronics and Its Applications from the perspectives of technological development, industrial applications and market prospects.

Co-organisers:

Supporting Organisations:

Registration
By 25 August 2014 [Seats are limited, on a first-come-first-served basis]

Online registration http://www.astril.org/en/online_reg/index.php?id=222 or
Complete this form and fax to 852-34062802 or email to karinako@astril.org

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# Symposium Agenda

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<td>09:00</td>
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| 09:25  | Welcome Remarks  
Mr. Andrew YOUNG  
Vice President, Marketing and Sales, Hong Kong Science and Technology Parks Corporation, Hong Kong |
| 09:40  | Opening Address  
Mr. Eric MA  
Chapter Chair, IEEE Power Electronics Society, Hong Kong |
| 10:00  | Keynote Speech: Advanced Power Electronics Technologies and Architectures for High Power / Voltage Energy and Transport Applications  
Dr. Robert PLANA  
R&D University Relations Director, Alstom Holdings, France |
| 10:45  | Coffee Break |
| 11:15  | Power Electronic Packaging and Reliability  
Dr. Yong LIU  
Senior Member, Fairchild Semiconductor Corporation, USA |
| 11:50  | Operating IGBT Module at Tjop=175°C  
Dr. Kwok Wai MA  
Director, Infineon Technologies Hong Kong Limited, Hong Kong |
| 12:25  | Networking Lunch (Speakers & Participants) |
| 14:00  | Power Semiconductor Filter for Power Electronic Systems  
Prof. Shu Hung CHUNG, Henry  
Professor, Department of Electronic Engineering, City University of Hong Kong, Hong Kong  
Director, The Centre for Smart Energy Conversion and Utilization Research, City University of Hong Kong |
| 14:35  | Design and Fabrication of 3D Wirebondless IGBT Module for High Power Applications  
Dr. Ziyang GAO  
Principal Engineer, Hong Kong Applied Science and Technology Research Institute Company Limited (ASTRI), Hong Kong |
| 15:10  | Coffee Break |
| 15:40  | Ultra-fast Charging for EVs and the Next Step  
Dr. Tin Ho LI, River  
Senior Scientist, ABB (China) Limited, China |
| 16:15  | Panel Discussion (To be joined by all speakers)  
Moderator: Prof. Shu Hung CHUNG, Henry  
Professor, Department of Electronic Engineering, City University of Hong Kong, Hong Kong  
Director, The Centre for Smart Energy Conversion and Utilization Research, City University of Hong Kong |
| 17:00  | Closing Remarks  
Dr. Enbo WU  
Vice President and Group Director, Hong Kong Applied Science and Technology Research Institute Company Limited (ASTRI), Hong Kong |
| 17:15  | End of the Programme |

## Biography of Speakers

**Dr. Robert PLANA**  
R&D University Relations Director, Alstom Holdings, France  

Dr. Robert Plana obtained his PhD in 1993 at LAAS-CNRS and Paul Sabatier University in Toulouse in the field of Microelectronic devices circuits and systems. From 1993, he has been working on the exploration of Silicon based devices for advanced wireless applications. In 2000 he has been appointed as a full professor at Toulouse University and Institut Universitaire de France and he has created a research group focusing on Micro and NanoSystems for wireless communications. From 2004 to 2006, he has been appointed as Scientific Director of the Information and Communication Department at CNRS. From 2007 to 2009, he has been working with National Research Agency in charge of the nanotechnology initiative. From 2009 to 2012, he has been heading the strategy for research and innovation at the Ministry of higher education and research. He joined Alstom group in January 2013 and has been working as a R&D and university relations director where he is in charge of coordinating the R&D and innovations activities across Alstom group and stimulating open innovation with Universities, Research organizations and Start-ups. Dr. Plana has authored and co-authored more than 300 international journals and conferences. He has also contributed to numerous public-private joint laboratories in the field of Power Electronics, Smart Grid, Smart City and Digital Energy and Transport.
Dr. Yong LIU
Senior Member, Fairchild Semiconductor, USA
Dr. Yong Liu has been with Fairchild Semiconductor Corp in South Portland, Maine since 2001, as a Senior Member Technical Staff from 2003, a Member Technical Staff from 2004 to 2007, and a Principal Engineer from 2001 to 2004. His main interest areas are advanced analog and power electronic packaging, modeling and simulation, reliability and material characterization. He has been invited to give more than 50 keynotes talks, presentations and professional short courses. He has authored and co-authored 3 books, 3 book chapters and over 170 papers in journals and conferences and has been granted 46 US patents. Dr. Liu has won numerous awards including Alexander von Humboldt Fellowship 1994 (Tech University of Braunschweig, Germany), the Alexander von Humboldt European Fellowship in 1997 (University of Cambridge, England), the Fairchild award for Power of Pen first place in 2004, Fairchild Built in Quality Award in product innovation in 2005, Fairchild Key Technology Award in 2006 and 2009, the first Fairchild President Award in 2008, numerous best paper awards and the IEEE CPMT Exceptional Technical Achievement Award in 2013.

Dr. Kwok Wai MA
Director, Infineon Technologies Hong Kong Limited, Hong Kong
Dr. Ma Kwok-wai graduated from The Hong Kong Polytechnic University with B.Eng and Ph.D. respectively in 1988 and 1996. Dr. Ma joined Infineon Technologies in 2005 and is currently Director in Industrial Power Control Division, responsible for product marketing and business development of IGBT in Asia-Pacific region, with special focus in high-power applications includes railway transportation, wind power and power transmission.

Prof. Shu Hung CHUNG, Henry
Professor, Department of Electronic Engineering, City University of Hong Kong
Director, The Centre for Smart Energy Conversion and Utilization Research, City University of Hong Kong
Professor Henry Shu-hung Chung received the B.Eng. degree and the Ph.D. degree in electrical engineering both from The Hong Kong Polytechnic University, Hong Kong, in 1991 and 1994 respectively. Since 1995 he has been with the City University of Hong Kong. He is currently professor of the Department of Electronic Engineering and Director of the Centre for Smart Energy Conversion and Utilization Research, City University of Hong Kong. His research interests include renewable energy conversion technologies, lighting technologies, and smart grid technologies. He is currently Editor-in-chief of the IEEE Power Electronics Letters, and Associate Editor of the IEEE Transactions on Power Electronics, IEEE Transactions on Circuits and Systems, Part I: Fundamental Theory and Applications, and IEEE Journal of Emerging and Selected Topics in Power Electronics. He has received numerous industrial awards for his invented energy saving technologies.

Dr. Ziyang GAO
Principal Engineer, Hong Kong Applied Science and Technology Research Institute Company Limited (ASTRI), Hong Kong
Dr. Ziyang Gao received his B.Sc. from the Department of Modern Mechanics, the University of Science & Technology of China (USTC) and his Ph.D. from the Department of Mechanical Engineering, the Hong Kong University of Science & Technology (HKUST). After completing his visiting scholar and post-doctoral research fellow at the Chinese Academy of Sciences (CAS), Ecole Normale Superiéure in France and HKUST, he joined ASTRI in 2008. His research interests include advanced packaging technologies, multi-scale coupling field simulation techniques, solid mechanics, plasticity, smart materials, collision and crashworthiness. Dr. Gao is the leader of the power electronics team and his team is focusing on the development of 3D packaging technologies for high power applications. Dr. Gao has over 30 publications in international peer reviewed journals and conferences, and wrote several chapters of two books. He also holds over 20 granted patents in US/CN.

Dr. Tin Ho LI, River
Senior Scientist, ABB (China) Limited, China
Dr. River Li received his Ph.D. degree in electronics engineering from the City University of Hong Kong in 2010. Since 2010, he has been with ABB Switzerland, Cooperate Research Center, as a Scientist and responsible for power electronic converter research activities. In 2013, he was transferred to ABB China, Cooperate Research Center. He is currently a Senior Scientist in the Department of Power and Control and responsible for photovoltaic and EV charging research activities. His research interests include efficient switching techniques and power electronic converter topologies analysis for low voltage and high voltage applications. Dr. Li is currently a Technical Committee on High Performance and Emerging Technologies of the IEEE Power Electronics Society.