



学术报告会 Seminar

题目	Energy Digitization and Software Defined Battery Systems - From Bits to Watts	
报告人	Professor Song Ci University of Nebraska-Lincoln	
时间	2018年4月27日(星期五) 下午 15:00-16:00	
地点	上海科技大学, 信息学院 1 号楼 C 区 502 会议室 (上海雾计算实验室)	

Abstract: Battery has been widely used in many applications, such as consumer electronics, electric vehicles, back power systems and grid-level energy storage systems. However, it is challenging to design an efficient, cost-effective, reliable and safe battery systems due to the fundamental mismatch between battery cell variation and fixed series-parallel battery pack configuration. Furthermore, it is even harder to fulfill various user demands based on today's limited types of battery technologies. Thus, energy digitization is proposed to overcome battery cell variation problems by utilizing the cutting-edge power electronics semiconductors, leading to a paradigm-shifting approach to battery system development and operation. Through energy digitization, traditional battery systems can be transformed from analog energy systems into digital, which allows to digitize and virtualize physical battery into digital energy assets and further to be seamlessly integrated with Internet ecosystem, leading to energy storage as a service to end users. In this talk, the design philosophy and the overarching system framework of energy digitization and battery virtualization will be discussed, and the effectiveness and efficiency of digital energy storage systems will be demonstrated by extensive experimental results and real-world case studies.

Bio: Song Ci is an Associate Professor with the ECE Department, University of Nebraska-Lincoln, USA. He has authored more than 200 peer-reviewed articles in those areas, and his research has been support by NSF and other funding sources. His current research interests include large-scale dynamic complex system modeling and optimization, energy Internet and distributed energy management, green computing and communications, and mobile Internet. He is a member of ACM. He has served as an Editor or a Guest Editor in many journals, such as the IEEE Transactions on Circuits and Systems for Video Technology, the IEEE Journal on Selected Areas in Communications, the IEEE Access, and the IEEE Wireless Network.

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