

Prof. Mo-Yuen Chow Presented Distinguished Lectures in North Carolina

The title of Dr. Mo-Yuen Chow's Distinguished Lecture at North Carolina State University on 28 November 2018 was "Advanced Microgrid Management System: Centralized Versus Distributed and the Role of Batteries" (Figures 1–3). Dr. Chow spoke at the invitation of Mike Doggett, Zheyuan Cheng, and Bharat Balagopal on behalf of the Eastern North Carolina Section (ENCS) Chapters of the IEEE Power and Energy Society (PES), the Computational Intelligence Society (CIS), and the Industrial Electronics Society (IES).

Dr. Chow, an IEEE Fellow, is the director of the Advanced Diagnosis, Automation, and Control (ADAC) Laboratory at the Electrical and Computer Engineering Department, North Carolina State University, Raleigh. Bharat Balagopal, the IEEE IES Region 3 (ENCS) Chapter chair and the secretary of the IEEE IES Energy Storage Technical Committee, invited Dr. Chow to speak at the event.

Dr. Chow said the advanced microgrid is envisioned to be a critical part of the future smart grid because it offers local intelligence, the advantages of automation, interoperability, and is capable of hosting distributed energy resources. The enabling technology of advanced microgrids is the microgrid management system (MGMS) with energy storage (mainly batteries for now and the next 15 years). In this presentation, the concept of MGMS and state-of-the-art solutions of centralized and distributed MGMSs in primary, secondary, and tertiary levels were discussed in terms of scalability, reliability, resiliency, and cost. The presentation discussed the importance, challenges, and opportunities related to the use of batteries in these microgrid settings.

Dr. Chow began his presentation by describing the impact that growing distributed renewable energy resources have on a centralized power grid. He compared the advantages and disadvantages of the centralized and distributed systems and discussed why the distributed microgrid is the future. He went on to describe the innovative research being done at the ADAC laboratory to address the problems associated with the increasing demand for integration of renewable energy resources and optimal scheduling to maximize system efficiency and lower system cost. Dr. Chow concluded by mentioning the testbeds in his laboratory and in real-world settings where he has implemented his technology to show that it works. The presentation was followed by a question-and-answer session where members of the audience asked about current energy issues, trends, and steps for making the smarter grid a reality. Attendees, besides members of the ENCS IAS, PES, IES, and CIS, included people from academia, industry, and the general public.



FIGURE 1 – Dr. Mo-Yuen Chow giving his IES Distinguished Lecture.

After the lecture, Dr. Chow provided the audience with articles that described the research he was working on in his laboratory. He encouraged the audience to visit his laboratory for live demonstrations of the technology he described. Dr. Chow acknowledges and thanks the many colleagues who helped make his ENCS Distinguished Lecture a success.

— Bharat Balagopal
IEEE ENCS IES Chapter Chair



FIGURE 2 – The audience at Dr. Chow's lecture.



FIGURE 3 – The audience for Dr. Chow's presentation.