

## Chinese Control Conference (International)

The Chinese Control Conference (International), or briefly, CCC, is an annual conference on systems and control theory and their applications. The Technical Committee on Control Theory (TCCT), Chinese Association of Automation (CAA), is responsible for the organization of the CCCs.

### Historical Overview

The first CCC, called as the National Conference on Control Theory and Its Applications at that time, was held in the southeast resort city Xiamen, Fujian Province, in 1979. Since its inception, the CCC has been held 24 times in various cities, drawing participants from universities, research institutions and industrial sectors. The CCC adopted its current name in 1994. The 24<sup>th</sup> CCC was held in Guangzhou, Guangdong Province, July 16-18, 2005.

As a professional organization, TCCT is affiliated with the Academy of Mathematics and Systems Science (AMSS), Chinese Academy of Sciences (CAS). Its membership is nominated by the universities and research organizations country-wide every 5 years. The eighth TCCT was appointed in 2003. In an effort to encourage and facilitate the academic exchange among researchers both at home and abroad, the current TCCT aims to make the CCC into an international conference. To this end, the TCCT has set up an International Exchange Committee. Many overseas colleagues are enthusiastically participating in the activities of the CCC. Both Chinese and English are now adopted as the working languages at CCCs. As a result, the CCCs are seeing greater numbers of participants from outside of China. The TCCT warmly welcomes and will make every effort to facilitate the participation in CCCs of our colleagues from abroad.



Fig.1: Over 400 people attended the opening ceremony of the 24<sup>th</sup> CCC. On stage there, from left to right, are

*Yueming Hu (Chairman of the Organizing Committee, the 24th CCC), Jie Huang (Chairman of the Program Committee, the 24th CCC), Sheng Zou (Deputy Director of the Ministry of Information Products, Government of Guangdong Province), Han-Fu Chen (General Chair of CCC, Member of CAS), Yuanyuan Li (Chancellor of the South China University of Technology), Lei Guo (President of AMSS, Member of CAS), Yong Chen (President of Division of Guangdong Province, CAS), Hongxin Wu (member of CAS), Daizhan Cheng (Chairman of TCCT, CAA, Chairman of the Program Committee, the 24th CCC), Bugong Xu (Dean of The College of Automation Science and Engineering, South China University of Technology)*

## Sponsorship

The TCCT is the permanent sponsor of the CCC. Each year there is a local co-sponsor, which is usually a university. The duties of local co-sponsor include local arrangements, paper submission process, and publication of conference proceedings. TCCT is responsible for selection of conference venue, selection of plenary speakers, review of papers, and award evaluation. Potential co-sponsors of the CCC normally submit their proposals to TCCT and present their proposals at a TCCT meeting two years ahead. The South China University of Technology was selected from a pool of several universities as the co-sponsor of the recent CCC in Guangzhou. The local co-sponsors for 2006 and 2007 CCC have already been determined as the Harbin Institute of Technology and the Central South University respectively. The intensive competition for co-sponsorship in a way indicates the prestige of CCC is enjoying.

In addition to TCCT and the local co-sponsor, the CCC is also technically co-sponsored by the IEEE Control Systems Society, the Society of Instrument and Control Engineers (SICE), Japan, and the Institute of Control, Automation, and Systems Engineers (ICASE), Korea.



Fig.2: The TCCT meeting at the 24<sup>th</sup> CCC. First row (from left): Weihua Gui, Fengsheng Tu, Xiren Cao, Dazhong Zheng, Lei Guo, Han-Fu Chen, Hongxin Wu, Huashu Qin, Daizhan Cheng, and Yi Huang. Second row (from left): Shaoyuan Li, Min Wu, Quan Pan, Xiaoping Fan, Shumin Fei, Yuqiang Wu, Jifeng Zhang, Li Yu, Gang Feng, Zhongsheng Hou, Xiaohong Guan, Jie Huang, Dewen Hu, Duangren Duan, Tong Zhou, Yisheng Zhong, Zhiyong Geng, Zhongping Jiang, Jun Zhao, Shuang Cong, Wensheng Yu.

## Technical Programs

The technical program of the CCC consists of plenary sessions and parallel oral sessions. Plenary speakers are invited. Parallel sessions include contribution and invited ones. Due to the steadily increase in the number of submissions, poster sessions were introduced at the 23<sup>rd</sup> CCC in 2004 and remained in the program of the 24<sup>th</sup> CCC. The submissions to the 24<sup>th</sup> CCC reached 549 papers, which are from various countries and regions, including the United States, Japan, United Kingdom, Singapore, Sweden, Poland, and Hong Kong, etc. Over 10% of the participants in the 24<sup>th</sup> CCC are from outside of the Chinese mainland. Five prominent researchers were invited to deliver plenary speeches. There were 49 parallel lecture sessions, comprising of 275 papers and 2 Poster Sessions, comprising of 125 papers. Eight papers were submitted for the Guan Zhao-Zhi (Kwan Chao-Chih) Award competition. Four of them have been selected in the final list. After the presentations, two papers have been awarded as “Nomination Award,” leaving this prestigious award vacant. Two papers received the Googol Application Award.

In addition to the technical presentations, the CCCs also organize technical and sightseeing tours. After the 22<sup>nd</sup> CCC a cruise of the Three Gorges on the Yazhi River was arranged, and after the 24<sup>th</sup> CCC a cruise around the Macau island, Zhuhai city and Zhongshan city was provided.

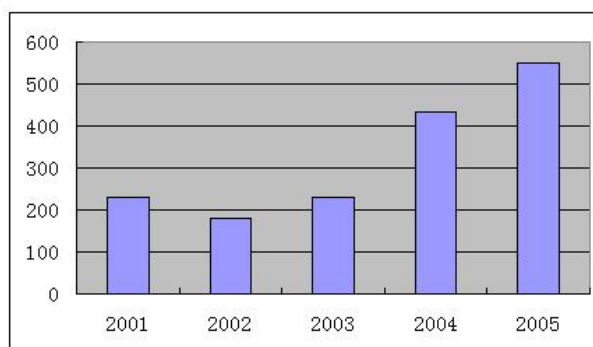


Fig.3: The paper submission to the CCC is steadily increasing from fewer than 100 papers for the first CCC in 1979 to 549 papers for the 24<sup>th</sup> CCC in 2005. Shown in the figure are the numbers of submissions for the past 5 years.



*Fig.4: Attendees of the 24<sup>th</sup> CCC tour Zhuhai, Guangdong Province. Zhuhai is one of the four cities that were chosen by the Chinese government to be the Special Economic Zones in the early 80's. Featured in the pictures are, from left to right, Professor Hassan Khalil, Professor Daizhan Cheng, and Professor Clyde Martin.*

## Plenary Speeches

The TCCT makes strong effort in organizing plenary speeches. Many prominent researchers have been invited to deliver plenary speeches at the CCCs. For instance, at the 23rd CCC (2004), Professor Dimitri P. Bertsekas of MIT, Professor Yoichi Hori of the University of Tokyo, Professor Frank L. Lewis of the University of Texas, Professor Yongzai Lu of the Shanghai Jiao Tong University, Professor Mark W. Spong of the University of Illinois at Urbana Champaign and Professor Xingyu Wang of the East China University of Technology were invited as plenary speakers. Their talks covered current development of control theory and its applications to walking robots, electric vehicles, financial market, etc. At the 24th CCC (2005), Professor Hassan K. Khalil of the Michigan State University, Professor Clyde F. Martin of the Texas Tech University, Professor Jing Sun of the University of Michigan, Professor Jie Wu of the South China University of Technology, and Professor Kemin Zhou of the Louisiana State University were the plenary speakers. Their talks were titled: “Conditional Integral Action in Nonlinear Control,” “Splines and Control Theory: Past, Present and Future,” “Integrated Power Plants for Advanced Transportation Systems: Challenges and Opportunities for Controls,” “Control of Renewable Energy Source and Power Electronics,” and “High Performance Robust and Fault Tolerant Control,” respectively.



*Fig.5: Professor Mark Spong delivers a plenary talk at the 23<sup>rd</sup> CCC, 2004. The title of his talk is: The Passivity Paradigm in Robot Control.*



*Fig.6: Professor Hassan K. Khalil delivers a plenary talk at 24<sup>th</sup> CCC, 2005. The talk is entitled: Conditional Integral Action in Nonlinear Control.*

## Awards

In memory of late Professor Guan Zhao-Zhi for his immense contribution to the initiation and development of modern control theory and its applications in China and his support and care of young scientists in the field of control theory and applications, the TCCT founded Guan Zhao-Zhi Award to encourage young scholars in the field of systems and control. The Foundation Committee and the Evaluation Committee of Guan Zhao-Zhi Award were subsequently founded to undertake the fund raising activities and the award selection process. The fact that the recipients of the Guan Zhao-Zhi Award continue to make significant contributions in their field of study has helped to build the reputation of the award.

In addition, TCCT also encourages control-related enterprises to set up awards for presentation at the CCCs. To ensure the quality of the awards, the establishment of the awards is carried out directly by the TCCT.



*Fig.7: Dr. Guangming Xie and Dr. Ying Yang received the Guan Zhao-Zhi Nomination Awards at the 24<sup>th</sup> CCC. Professor Han-Fu Chen and Professor Hongxin Wu, Members of the Chinese Academy of Sciences, present the Awards.*

## Pre-Conference Workshops

For the first time, four pre-conference tutorial workshops have been arranged at the 24<sup>th</sup> CCC, 2005. Professor Ben Chen and Dr. Kemao Peng of the National University of Singapore, Professor Daizhan Cheng of the Institute of Systems Science, Chinese Academy of Sciences, Professor Zongli Lin of the University of Virginia, and Professor Tielong Shen of the Sophia University, were invited as lecturers of four different tutorial workshops. Their workshops are titled respectively, “Composite Nonlinear Feedback Control Technique and Its Applications,” “Switched Control Systems,” “Control Systems with Actuator Saturation,” and “Advanced Nonlinear Robust Control for Mechanical and Electrical Systems: Fundamental Theory and Applications.” These workshops have been warmly received. Over one hundred researchers attended the workshops.





*Fig.8: Professor Zongli Lin presents a pre-conference workshop on the analysis and design of control systems with actuator saturation at the 24<sup>th</sup> CCC, 2005.*

## Invitation for Participating CCC

As a fast developing country, China recognizes the essential role of automation in its industrialization and modernization. Over 100,000 researchers work in the field of systems and control. Over 100 universities in China have their Departments of Automation. Automation has been and continues to be one of the few most popular majors in colleges. The Chinese government pays particular attention to the research in Automation. Many national key projects have been established that focus on control theory and its applications. Indeed, the research in the field of systems and control is mushrooming in China.

The TCCT, as well as, the Chinese systems and control research community are eager to meet and collaborate with our colleagues abroad. The CCC, as the major event of Chinese systems and control research community, welcomes and will make every effort to facilitate your participation. For detailed information please visit our web-page: <http://ccc.amss.ac.cn>, <http://tcct.amss.ac.cn> or contact at [dcheng@iss.ac.cn](mailto:dcheng@iss.ac.cn)