

# Report from the TC for Transportation Machinery for Newsletter 2008

This year we welcome 3 new participants to our TC:

Prof. Nong Zhang (UTS Sydney), Prof. Ashitava Ghosal (IISc., Bangalore), and Prof. Frank Park (Seoul National U)

Our primary objective this year was to revive and re-energize the activities of the TC given the many new advances that are taking place in the area of hybrid and electrified automobile powertrains. In addition to face-to-face meetings at suitable conferences, we have scheduled quarterly teleconferences for information exchange and coordination. We have had 2 teleconferences this year (7/25/08 and 12/18/08). Some of the highlights of our recent regional teaching and research activities are summarized below:

- **Prof. Chintien Huang, National Cheng Kung University, Tainan, Taiwan**, is currently in collaboration with KMC, a large chain manufacturer in Taiwan -- one of the largest producers of bicycle chains. Together they are developing a competitive product for automotive applications. Prof. Huang is also extending research to folding bikes. In addition to the above Prof. Huang is continuing his research on the theoretical kinematics of closed loop, overconstrained linkages
- **Prof. Nong Zhang, UTS Sydney**, is conducting teaching & research in Mechanical Engg & Mechatronics at UTS. He also manages sponsored research projects on hydraulic active suspensions, advanced automotive DCT transmissions, vehicle dynamics, hybrid vehicle energy storage, recuperation, and optimal energy management
- **Prof. Ashitava Ghosal, IISc. Bangalore**, presented a lecture entitled "Kinematics, dynamics and stability analysis of mobile robot" at CEP, Robotic Division, CVRDE, DRDO, Avadi, Chennai-54. He also attended the AMM Workshop on Design of Mechanisms for Solving Real Life Problems, October 23-25, 2008, organized by AMM India and Dept. of Engineering Design, IIT Madras <http://www.ammindia.org/index.html>. His lecture was entitled "Dynamic analysis of mechanisms"
- **Madhu Raghavan, GM R&D**, presented a lecture entitled "Electrification of the Powertrain; Energy Diversity and a Clean Environment," at the 2008 IEEE International Conference on Vehicle Electronics and Safety, Sep. 22-24, 2008, Columbus, Ohio. He also presented a paper, "Variable Valve Actuation for Advanced Powertrains," at ASME DETC 2008 in New York, and co-authored a paper on "Testing of Variable Valve Actuation Mechanisms," presented at the 17th Aachen Colloquium in Aachen Germany. In addition he has conducted several joint-brainstorming sessions with representatives from various US Govt. Labs on the topic of Next Generation Propulsion Technologies

## Plans for 2009

1. We plan to have TC meetings (or sub-group meetings) at suitable conferences in 2009, e.g., AutoCRC Annual Conference (Melbourne), SAE World Congress (Detroit), ASME DETC 2009 (San Diego).
2. We will have 4 teleconferences (at the end of each quarter) in 2009.
3. We propose to update the Transportation Machinery web-site to be consistent with the other TCs.