

TKU PhD. CANDIDATE WON IFAO EXCELLENT RESEARCH PAPER AWARD

Water Resources and Environmental Engineering PhD candidate Chi-pei Li attended an international conference by the American Society for Artificial Internal Organs from May 28 to 30. He won IFAO (International Federation for Artificial Organs) Excellent Research Paper Award Certificate plus US\$1,000. He grabbed the Award with his paper “Estimation of Viscous Dissipative Stresses Induced by a Mechanical Heart Valve Using PIV Data” among 213 research papers by doctors and PhD holders from different countries around the world. More than 300 experts and scholars from the U.S., Canada and European countries attended the conference and Li’ s paper highly attracted their interests.

Li’ s supervisor, Professor Po-chien Lu expressed that Li’ s research achievement was an important breakthrough in future artificial organ design and research on blood flowing phenomenon. Normally when the blood flows through the cardiac catheterization, the artificial cardiac valve or other artificial internal organ, the red blood cells will suffer the stress impact produced by the non-physiological phenomenon and break. Then they release heme with toxin which can cause kidney or other organ failures, or can destroy blood platelets inducing thrombus or strokes. But generally medical instruments cannot detect and forecast the situation of blood cell destruction in the artificial internal organ; therefore, the problem has not yet been solved. Applying water resources in hydromechanics research results, Chi-pei Li has tried to estimate the impact of blood cells flowing through a mechanical heart valve by using PIV Data. With the new data obtained from Li’ s observation, new artificial organs may be designed; thus, the problem which has troubled the designers of artificial internal organs for more than 50 years may be solved by reducing the destruction of blood cells.

As for the process of the research, Chi-pei Li said that common equipment has resolution limit, and Professor Po-chien Lu has done quite deep research in this domain. “He advised me to obtain data with new measurement models and gave me a great deal of help. In Taiwan there isn’ t much research done in this area, especially in terms of medical instruments. If the Department of Water Resources and Environmental Engineering goes into the domain of medical instruments by applying hydromechanics research results, a promising future can be expected.” (~Dean X. Wang)

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