

## U. S. PATENT TRI-LEAFLET MECHANICAL HEART VALVE

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Lu Po-chien's Invention Bless Patients of Heart Disease Last month U.S. patented the "tri-leaflet mechanical heart valve" (TLMHV) invented by Professor Lu Po-chien (Department of Water Resources and Environmental Engineering), an unprecedented achievement of TKU. Henceforward, Professor Lu, the patent's owner, will be entitled to the legal prohibition of the production, sale, use, or importation of the same or similar products, enjoy more protection of his right internationally, and be able to seek for cooperation with other entrepreneurs.

As Professor Lu pointed out, applying for U.S. patent is not easy. The strict examining process includes several rounds of oral defense. The case of TLMHV had been submitted to U.S. government in July 2003, and was approved recently. Lu emphasized that although a great improvement has been made in the research and invention of mechanical valve, more researches will be done in order to perfect medical therapeutic apparatuses. He expected that TLMHV can be produced in Taiwan and marketed internationally to meet the prevalent needs, and Taiwan can occupy a globally dominant position in the development of artificial cardio-valve.

Because of the imbalanced diet, fat may easily pile up at the valve, and the defective functioning of valve will cause the reverse flow of blood. Professor Lu indicated that ordinary artificial valve can function for 15 years, but may damage blood cells and cause embolism. But his patented MTCV is made of graphite material and coated with split carbon it doesn't cause blood rejection meanwhile, the renovated mechanical is more user friendly. The cost of producing a TLMHV is around fifty to sixty thousand NT Dollars. The cooperation with entrepreneurs is yet to be established, but the marketing of TLMHV, Lu strongly believed, will surely be a great blessing to the patients of heart disease.

Originally Professor Lu Po-chien' s specialized in fluid dynamics and environmental wind field and hole. Majoring in water resources and civil engineering in U.S., he also stayed at Boston Medicine Center researching medical engineering he found out the applicability of fluid dynamics in medical engineering, which motivated his dedication to the research of artificial cardio-valve.

Meanwhile, he is conducting the national health research project of "circulation assistant apparatus," applying fluid dynamics to reduce the heat caused by abrasion, decrease the volume, enlarge the efficiency, and save more electricity no artificial valve is needed, and the price will be lower than that of the old type. Because the project is complicated with various academic fields and, therefore, difficult to complete, the assistant apparatus that fits Eastern people remains to be invented. (~ Han-yu Huang )