



何宗易

國立成功大學資訊工程學系副教授

代表作名稱：

- ★ Tsung-Wei Huang, Shih-Yuan Yeh, Tsung-Yi Ho*. "A Network-Flow Based Pin-Count Aware Routing Algorithm for Broadcast-Addressing EWOD Chips." *IEEE Transactions on Computer-aided Design of Integrated Circuits and Systems* 30.12 (2011): 1786-1799.
- ★ Jia-Wen Chang, Sheng-Han Yeh, Tsung-Wei Huang, Tsung-Yi Ho*. "Integrated Fluidic-Chip Co-Design Methodology for Digital Microfluidic Biochips." *IEEE Transactions on Computer-aided Design of Integrated Circuits and Systems* 32.2 (2013): 216-227.
- ★ Ying-Han Chen, Chung-Lun Hsu, Li-Chen Tsai, Tsung-Wei Huang, Tsung-Yi Ho*. "A Reliability-Oriented Placement Algorithm for Reconfigurable Digital Microfluidic Biochips Using 3D Deferred Decision Making Technique." *IEEE Transactions on Computer-aided Design of Integrated Circuits and Systems* 32.8 (2013): 1151-1162.

得獎簡評：

何宗易博士的三篇代表作均發表於 *IEEE Transactions on Computer-aided Design of Integrated Circuits and Systems*，這是晶片系統電腦輔助設計領域的最頂級期刊。更重要的是，他的代表作不但開創了微流體(Microfluidic)生醫晶片(Biochips)的新方向，更首先把流體層(Fluidic-level)和晶片層(Chip-level)作了細緻的整合，融入相當深入的方法論(Methodical Formulation)、演算法(Algorithm)及嚴謹的學理及數學，使用諸如樹狀及圖論(Tree-based and Graph-based)為基礎的分析或整數式線性規劃(Integer Linear Programming)等方法，結合如平行分工(Divide-and-Conquer)、動態規劃(Dynamic Programming)等計算科學的核心學理，同時考量了流體層的操作排程(Fluidic-operation Scheduling)、晶片層的配線安置(Chip Layout Generation)、控制接腳分配(Control Pin Assignment)及繞線方案(Wiring Solution)等，為最先進的特定生化實驗規範(Biochemistry

Laboratory Protocols), 提出最高功能(Performance)、最高可靠度(Reliability)、最低耗能(Power Consumption)、最低製作成本(Manufacturing Cost)的單晶片實驗(Lab-on-chip)解決方案(Solution)。評審委員一致同意這是晶片系統自動設計領域極具開創性及有重大影響的突破性研究成果,也一致認同作者何宗易博士在該一領域為受全球學界肯定的傑出年輕學者。何博士因此脫穎而出,獲選為本年度中央研究院年輕學者研究著作獎得獎人。

得獎人簡歷：

Tsung-Yi Ho received his Ph.D. degrees in Electrical Engineering from National Taiwan University, Taipei, Taiwan, ROC, in 2005. Since 2007, he has been with the Department of Computer Science and Information Engineering, National Cheng Kung University, Tainan, Taiwan, ROC, where he is currently an Associate Professor. His research interests include design automation for microfluidic biochips and nanometer integrated circuits. He has published several papers in top journals and conferences such as IEEE TCAD, ACM TODAES, ACM/IEEE DAC, IEEE/ACM ICCAD, ACM ISPD, and etc. He presented 8 tutorials and contributed 4 special sessions in ACM/IEEE conferences, all in design automations on biochips. He was the recipient of many research awards, such as Dr. Wu Ta-You Memorial Award of National Science Council (NSC) of Taiwan, Distinguished Young Scholar Award of Taiwan IC Design Society, Outstanding Young Electrical Engineer Award of Chinese Institute of Electrical Engineering, K. T. Li Research Award of Delta Electronics, ACM Taipei Chapter Young Researcher Award, IEEE Tainan Chapter Gold Member Award, the Invitational Fellowship of the Japan Society for the Promotion of Science (JSPS), Japan, and the Humboldt Research Fellowship from the Alexander von Humboldt Foundation, Germany. Currently, he serves as a Distinguished Visitor of the IEEE Computer Society, the Chair of IEEE Computer Society Tainan Chapter, and an Associate Editor of ACM Journal on Emerging Technologies in Computing Systems and IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems. He is a senior member of IEEE.

代表作簡介：

何宗易副教授的研究方向著重於微流體生物晶片之設計自動化,不同於近十年文獻上只著重於流體層級(Fluidic Level)之自動化,他開拓了晶片層級(Chip Level)之自動化議題,藉由同時整合流體排程、晶片佈局、針腳定址及訊號線繞線之共同設計方法論,可再針對微流體生物晶片之功率消耗、可靠度及製造成本作全面性的最佳化。其三篇代表著作皆發表於電子設計自動化公認之頂尖期刊 *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (IEEE TCAD)*。此外,其相關著作也發表於該領域最頂尖的國際會議 ACM/IEEE Design Automation Conference (DAC)與 IEEE/ACM International Conference on Computer Aided Design (ICCAD),並獲得 2011、2012 及 2014

年的 ACM/IEEE Asia and South Pacific Design Automation Conference (ASPDAC)之最佳論文獎提名、2012 年的 International Workshop on Synthesis And System Integration of Mixed Information technologies (SASIMI)及 2013 年的 IEEE VLSI Test Symposium (VTS) 之最佳論文獎。

近年何教授除在國際會議上受邀進行相關研究成果之 Keynote Speech/Invited Talk/Tutorial 外，也擔任 ACM/IEEE DAC、IEEE/ACM ICCAD、IEEE/ACM ASPDAC 等國際頂尖會議之議程委員，*ACM Journal on Emerging Technologies in Computing Systems (ACM JETC)*及 *IEEE TCAD* 之期刊副編輯，以及 IEEE Computer Society 之 Distinguished Visitor，其傑出表現已吸引許多國外的研究團隊（美國、德國、丹麥、日本、印度、中國）與何教授之團隊進行合作，目前已將微流體生物晶片設計自動化的研究重心集中在臺灣。

得獎感言：

本人能獲得中研院年輕學者研究著作獎，首先要感謝學生們的努力不懈，感謝科技部和產業界所提供的優越研究環境和成大電機資訊學院前輩們的鼓勵與提攜。尤其在電子設計自動化領域，有多位非常有遠見且無私的前輩所建構的絕佳產學研究發展環境，使得年輕學者能與國際最頂尖的研究並駕齊驅，甚至有所超越。最後，我更要感謝家人的體諒與協助，能讓我專心悠遊於學術研究，而無後顧之憂。