中原大學

107 學年度研究傑出教師獲獎人-

■化學工程學系 費安東 副教授

第一次獲獎 研究類(自然科學工程領域)

■電子工程學系 陳世綸教授

第一次獲獎 研究類(自然科學工程領域)

■機械工程學系 鍾文仁教授

第二次獲獎 產學類(建教合作含產學領域)

■化學工程學系 費安東 副教授

Dr. Antoine Venault, Associate Professor
Department of Chemical Engineering

Research focus

My research work mostly concerns the development of polymeric membranes and lies in particular on 3 major axes including (i) the formation of membranes and antifouling membranes by *in-situ* modification, (ii) the design of oil/water separation membranes and (iii) the development of porous biocompatible membranes for blood filtration or wound-healing of chronic and acute wounds. In general, we try to simplify the membrane formation processes in order to enhance the chances for mass production. This implies to gain control over the membrane formation mechanisms (kinetic and thermodynamic aspects) and to strengthen our knowledge of the parameters that can influence the final membrane structure. The reference journal in my field is Journal of Membrane Science. Therefore, we try to have our membrane research works published in this journal, which we have done a quite good number of

times in the past few years. Otherwise, we try to get our work published in ACS journals such as ACS Applied Materials & Interfaces or RSC journals such as Journal of Materials Chemistry B. I am currently finishing one MOST project and am running two other MOST projects as a PI including an Outstanding Young Researcher project (專題研究計畫(優秀年輕學者研究計畫) that started in August 2017. Besides, I am involved in several international MOST/ANR projects with French universities (Université de Montpellier and Université de Toulouse).

Experience sharing

I received most of my education (BSc, MSc, PhD) in Université Montpellier 2, France, which recently merged with other Universities to become Université de Montpellier. While I was in my last year of PhD, I was looking for postdoctoral positions in my country or worldwide, and I had the chance to be given several opportunities. I chose to come to Taiwan at the R&D Center for Membrane Technology of CYCU, following my PhD mentors' advice, who were convinced that I could conduct nice research work there and meet great researchers. I packed and moved. That was at the end of November 2010 and I am still here now. I guess it is because I found a very good environment and met great students, research assistants, researchers and professors who made me grow as a faculty. I am still in the progress of learning but well, I can probably share some of the things with young researchers and scholars about my work.

(1) Be grateful of being a professor and manage your time well

There is not one day that goes through when I don't tell myself that I have the best job in the world. We have flexibility, large freedom of time management and choices of research directions. We can almost decide when/where to work, as long as the job is done. We have the choice to make good use of the extended and multiple times off that we have. During the weeks, week-ends, winter, spring and summer breaks, there are numerous moments when we don't have to teach. Does it mean that we are on vacation? No, and even though I am often being asked at the end of June by people who are not in the system "what are you going to do during your 2 month vacation?" It is our responsibility to decide to make good use of the time we have. There is not going to be anyone constantly checking at what we are doing. In addition, we have the freedom to decide to investigate other directions, wherever our curiosity leads us. This is something that not many jobs offer. I am grateful for it.

(2) Observe and be inspired by people around you

I have had the chance to meet numerous professors in my department or other departments, or in other universities, from the very first moment I stepped in Taiwan. Many of them have something which I think is exceptional and which I wish I had, and I am trying to be inspired by them. Leadership, work-ethic, responsibility, kindness, humility, etc… Many professors here combine several of the key elements to become a great professor. Although I do not fully understand the language, I think that I can quickly identify what is great in these people. So I try to study them and see how they became that successful. Of course, I am aware that the world is not all black

and white but colored in shades of grey instead. Well, I just try to focus on the good things.

(3) Identify the key people in your field and study them

My field (like any other field) is leaded by "key" researchers distributed in all regions of the world. I have had the chance to talk to some of them in symposium, conferences or lab visits, and I spent time "studying" them. I read their papers, read their lab introduction and tried to discuss with them to try to figure how they worked. All of them have a common passion for their work, which drives them out of bed at sunrise and keeps them awake till late. Their writing time is quite limited, due to their busy meeting schedule, but yet manage to either write very early before "normal" people wake-up or late, when people usually go home after work. They all have a strong work-ethic, and, despite their numerous outstanding achievements, most of these people I have met look simple, kind and humble.

(4) Get a clear picture of what you want to become

I have been having that clear goal in my mind of what I want to become since I started my PhD. It's been a while now (> 10 years) and there is not one day that passes by I don't think about it. I have not reached it yet but I believe that I am on the right way. This goal drives me every day and helps me stay motivated. I can understand that after some years of experience, the job routine can slow things down and make people lose their motivation. But if we constantly set goals, not matter how realistic they may look in the first place or sound to the people, then there is always going to be that driving force that keeps us moving forward.

(5) Work hard and be consistent to stay away from average

Being average equals to staying in the comfortable zone, looking for easiness rather than for challenges. It is easy to be average in work, sport, music or whatever domain. It is much harder to be better than average. In many situations, I realize I am just average, and I just do not like this feeling. So I am trying to work a little bit harder to stand out in whatever I think it is worth it to stand out in order to reach my goals. As a sports enthusiast, I like to watch top athletes perform and always keep in mind that the perfection of their gestures performed in the light comes from thousands of hours in the gyms and on the pitch, hours spent rehearsing in the dark when nobody is watching. I believe in talent, but I do not believe that lack of talent can stop anyone. Lack of talent cannot fail anyone, lack of work will. So let's say I believe more in work than in talent. That fake secret that everyone knows is hard work, no matter how talentless one is. I have no talent. But I have learned to accept my "talentlessness" and found that if I want something, I can get it through working harder than others. Consistency matters a lot too. Nothing happens by providing a huge amount of work in a small amount of time and then resting for a huge amount of time. Repeating the efforts is essential to ensure sustainability of successful outcome. Obviously, people around me help me/motivate me/inspire me a lot to try to be consistent in hard work.

(6) Try to do something different

Most journals require the authors to provide a short list of their work highlights. This

list summarizes the novel aspects of their work. These highlights should also clearly appear in the abstract, graphical abstract and introduction of their study. Novelty is clearly something that is going determine whether a manuscript is going to be published, as well as the impact of the journal it is going to be published in. To my opinion, extra care has to be put on (i) the description of the highlights, (ii) the writing of the abstract and (iii) the design and organization of the figures. Of course, it is difficult to change and do something totally different from what we did during our PhD or postdoctoral training, but one must try to slowly step out of that way, and use their skills to think things a bit differently in order to do something not done before by their former advisers or colleagues in the field. It also requires a lot of reading and paper reviewing for journals, to constantly be aware of the state of the art is.

(7) Identify the strengths/weaknesses of your students and spend time with them

We are lucky to have numerous people in the group. Everyone has one/several strengths that would be hard to replace if they decided to leave the group. This is, to my opinion, what we should focus on as group leaders. Some students are excellent at performing experiments or in management, while others stand out in data analysis, figure plotting, teaching to their juniors, computation, or even paper writing. One of my objective is to encourage students to become even stronger at what they are already good at and to acquire other skills. As a professor, I need these skills in the lab. I need people to perform tests, I need graduate students to teach to undergraduate students, I need people to help me write. If I get to know my students well, if I take enough time to speak to my students and ask them what they like to do, what they are interested in, then I guess I can take full advantage of our manpower.

(8) Numbers are not all that matters

At the end of the day, there are much more important things in life than the number of papers. I have noticed that people in the scientific community have a tendency to show off these numbers. But numbers can be interpreted in different ways. I may have n papers but my field is Chemical Engineering. It is probably easier to get published in this field than in many other fields. Besides, out of these n papers, how many did I actually write? How many did I actually edit? How many are cited? How many pushed my field? How many are published in Q1 SCI journals? How many are in high impact factor journals (top 10%)? For how many of them am I 1st or corresponding author? More importantly, can I actually tell people the story behind each of these papers, that is, take full responsibility for what's been written? I am the only one to have the answers to all of these questions. I would like to tell younger people: keep your numbers on the low, save them to apply research proposals, it is not necessary at all to brag about it.

■電子工程學系 陳世綸教授

Dr. Shih-Lun Chen, Professor

Department of Electronic Engineering

■ 研究論述

電子系陳世綸博士於 2011 年 6 月畢業取得成功大學電機工程研究所博士學位，於 2011 年 8 月進入中原大學電子系從事教職工作；個人研究領域主要在影像處理器晶片設計、平面顯示器節能演算法與晶片設計、無線感測網路、穿戴式裝置、醫學影像、視訊與資料處理演算法與晶片設計，在影像處理器晶片設計的研究上，主要提出高效能、低成本、低記憶體需求與低能耗之影像處理器晶片設計，此研究除了在晶片硬體設計上有所貢獻外，在影像處理演算法上也具有創新性的突破；在平面顯示器節能演算法與晶片設計的研究上，主要提出高品質與高節能率之顯示器背光控制與影像補償晶片設計，此研究除了在影像處理演算法上具有創新性的突破，在晶片實現上也具非常具有創新性並能實際應用於平面顯示器中；在無線感測網路、穿戴式裝置、醫學影像、視訊與資料處理演算法與晶片設計相關研究上，主要提出了訊號解析度控制、訊號壓縮、影像壓縮、訊號處理、訊號運算等晶片設計，這些晶片設計能有效提升相關領域之應用效能，這些研究成果皆具有相當之創新性、學術價值與實用價值。

陳世綸博士於 2011 年 8 月進入中原大學後，相繼發表多篇國際知名期刊論文與多件國內外發明型專利，並有多項研究成果獲選最佳論文並接受國際期刊專欄訪問；個人亦獲得中原大學年輕學者獎、中原大學年輕教師研究特優獎與中原大學研究傑出獎；為取得更多資源進行研究發展，積極爭取科技部與產學合作計畫，2011 至今平均每年執行二件以上科技部計畫，其中包含科技部專題計畫、科技部專案計畫與科技部產學合作計畫，並相繼榮獲科技部產學合作計畫成果傑出獎與特優獎；除了科技部計畫外，個人積極投入產學合作，每年平均執行五件以上產學合作計畫，其中最具代表性的為與

產業界共同開發長期由國外廠商所獨佔之關鍵零組件晶片，成功設計出我國第一顆自行設計與生產的振盪器控制晶片與全世界最小之振盪器控制晶片，相關發明型專利榮獲美國匹茲堡國際發明展金牌獎與瑞士日內瓦發明展金牌獎，並榮獲台北國際發明展半導體類僅選出一件代表最高榮譽的鉑金獎，為中原大學拿下第一座台北發明展的鉑金牌，達到拋磚引玉之成效，其它多項專利亦榮獲國際發明展金牌與國家發明創作獎發明獎銀牌之肯定。

■ 經驗分享

平心而論，相較於許多國立大學老師，中原大學的老師在研究發展上是相當辛苦的，除了每週要上滿九個鐘點以上的課程外，學校對於教學與服務的要求相較於其它學校為高，對於中原大學許多在研究辛勤耕耘、努力不懈的老師，由衷表達敬佩之意。

在耕耘研究最辛苦之處就是要與全世界的學者專家競賽，因此許多研究是有時效性的，如果沒有在浪頭上立即做完實驗和完成論文發表，等到忙完教學和服務再回過頭來時，常常發現自己的研究成果已從創新的技術變成過時的方法，徒增時不我與之嘆。因此在研究上，個人首重時間管理，每週無論再忙碌，都要至少先預留二段三小時以上可以靜下心來思考未來的研究方向、撰寫論文和計畫的時間，並善用零碎與課堂間一二小時的時間處理行政、輔導、教學與會計等相關瑣事，然後將一整段的時間保留給研究；而在處理研究相關事務的優先度上，常常因為期刊論文沒有所謂的最後投稿時間(Deadline)，因此都先處理一些有急迫性和有最後投稿時間的研討會論文，期刊論文明明是最重要，卻常常壓在案頭，有時一放短則數個月，長則超過一年都沒有投稿出去，等到所有急迫性的事情處理完了，技術領先的前瞻研究成果變成過時的技術了；因此在處理比較重要技術的期刊論文發表上，個人會在行事曆上自己訂定每篇期刊論文的最後投稿時間，然後要求自己在這個時間以前必須投稿出去，以免發生我們都把時間先處理很急迫但不是那麼重要的事情，而對學術生涯很重要知名國際期刊的論文發表反而最後處理。

要維持有足夠的人力和資源持續進行研究，研究經費的挹注一定是不可或缺的，除了每年十二月底申請的科技部專題計畫外，科技部尚有許多各式各樣的專案計畫與產學合作計畫等，都是可以積極爭取的；其中各種不同性質的計畫所重視的評分要點不盡然相同，並非重點全部集中在論文發表項目，以科技部產學計畫為例，審查委員更在意的是所提出來的內容是否有商品化的價值；另外常有經濟部與許多財團法人的計畫案，大多是任務導向型的計畫案，如果有合適的議題可以提出去申請看看，有時提到A的部門沒有通過，對方若覺得我們的專長很適合B部門，主動推薦過去，下一期就可以順利申請到B部門的計畫；我個人特別喜歡的是跟企業合作的產學合作計畫，因為跟企業合作的產學計畫案除了一樣會有經費資源的挹注外，更能直接得到目前產業發展與需求的最新資訊，個人常常在與企業談合作的過程中，得到許多在研究上的題目與靈感，對於參與產學計畫的學生，畢業後在找工作時也

能找到待遇與條件較好的工作，也比較有機會收到一些較有上進心的學生，對於家境清寒的學生尤其有幫助，以個人的經驗，多與企業接觸進行產學合作有許多優點，並可製造出多贏的機會。

個人覺得要帶領整個研究團隊做實驗、發表論文與爭取經費，就像在行軍打仗一樣，博士生、研究生與專題生都是我們的子弟兵，而各式各樣計畫與經費都是我們的糧草，我們就像指揮研究團隊作戰的將領，如果給團隊一個正確的方向和經營管理好自己的團隊，比自己每天沒日沒夜的加班更為重要。個人常以孫子為將之道的五德「智、信、仁、勇、嚴」為基礎，時時檢視自己：是否取得足夠的資訊客觀評估目前相關研究的局勢後，明智地決定團隊的研究發展方向；對於承諾過學生的事情，是否維持信譽都有做到；當學生遇到困難時，是否能像幫助自己小孩一樣，仁慈地幫助學生度過難關；在研究的過程中自己是否比學生更認真，身先士卒勇往直前站在第一線拼研究；對於學生基本能力與畢業研究成果的要求是否嚴厲，是否嚴格地訓練學生擁有進入職場的能力；個人覺得身為研究團隊的領導人，只要能好好做好這五德，就能讓自己的研究團隊有足夠的戰鬥力，目前個人也是時時用這五德檢視自己，希望能持續朝這方向努力。

當大學老師是非常辛苦，同時要扮演好多重角色，在講台上當老師時要像小丑一樣逗得學生哈哈大笑，不然學生不是趴在桌子上睡覺就是滑手機；當下課回到辦公室後，要靜下心來，一個人忍受孤獨，對著電腦敲著鍵盤寫論文；而當面對自己的博士生、研究生、專題生和計畫時，要管理整個研究團隊與計畫大大小小的事務；又要不時關心自己的導師與解決導生大大小小的問題；要同時扮演好這三種角色是非常困難與辛苦的，也唯有如此，更顯得出大學教授的不凡與責任重大；研究是一孤獨而且漫長的道路，當我們緩步而行逐漸到達彼岸時，那種喜悅比什麼都美好。

Experience sharing/Research focus

Shih-Lun Chen received his B.S., M.S. and Ph.D. degrees in Electrical Engineering from National Cheng Kung University, Tainan, Taiwan, in 2002, 2004, and 2011, respectively. Dr. Chen is currently a Professor with the Department of Electronics Engineering, Chung Yuan Christian University in Zhongli, Taiwan since 2017 where he was also an Assistant Professor from 2011 to 2014 and an Associate Professor from 2014 to 2017. His current research interests include image processor chip design, power saving algorithm and chip design for LCD, wireless sensor network, wearable devices, internet of things, biomedical image processing, video and data compression, bio-medical signal processing and chip design. Professor Chen has published more than 45 technical journals, 90 conference papers and 15 patents in these research areas. Professor Chen was invited by the organization of Electronics Letters for interviews on

research highlights in 2013 and for expands features sections in 2015.

Professor Chen received several awards that include Taipei International Invention Show & Technomart, Taiwan Silver Medal award in 2011; Chung Yuan Christian University, Taiwan Best Mentor award in 2012; International Trade Fair Ideas Inventions New Products (iENA), Germany Silver Medal award in 2013; Chung Yuan Christian University, Taiwan Young Researcher award, National Inventions, Taiwan Silver Medal award, Chung Yuan Christian University, Taiwan Young Researcher award in 2014; Chung Yuan Christian University, Taiwan Best Teacher award, Invention & New Product Exposition, Pittsburgh, USA Gold Medal award, and Taipei International Invention Show & Technomart, Taiwan, Highest Honor Platinum award in 2015; Geneva International Exhibition of Inventions, Switzerland Gold Medal award in 2016; and Chung Yuan Christian University, Taiwan Excellent Research award and Best Mentor award, and Taiwan Innotech Expo Gold and Silver Medal awards in 2018.

■機械工程學系 鍾文仁教授

第二次獲獎 產學類(建教合作含產學領域)

Dr. Wen-Ren Jong ,Professor

Department of Mechanical Engineering

■ 研究論述

1982 年畢業於清華大學動力機械系，並在美國康乃爾大學完成了機械工程碩士與博士學位，期間跟隨著王國金博士的腳步，加入了康乃爾射出成型計畫(CIMP)，從此之後，便開始研究模具塑膠設計/製造相關技術。

1993 年來到中原大學服務，研究領域主要為模具設計/製造引導系統、AI 排程系統與智慧製造整合工程；模具設計/製造引導系統是以 CAD 軟體為基礎，將模具設計與製造的專業知識，透過程式開發整合為知識導向的互動介面，實現標準化、智能化、知識化、自動化、客製化與協同化的數位平台，協助工程師一步一步完成複雜的模具開發；AI 排程系統則是透過演算法及機器學習，自動分析加工之資訊，找出影響關鍵，在規劃排程階段中預先警示高風險程序，並回饋至設計端進行改良與知識累積，也將改變過去模具產業以重工、試誤來解決問題之作業流程模式，為模具製造業帶來高效率、高品質與高價值的研發能量。

■ 經驗分享

產學合作開創契機

2005 年與捷普綠點高新科技的合作計劃，開啟了研究模具設計引導系

統的契機，之後持續與許多企業、財團法人等進行產學合作，例如：光寶科技、時碩科技、工研院、金屬工業中心、佳世達科技、科盛科技、奇美電子、盟創科技、上銀科技、英業達、達運精密工業、丞威精密工業、南俊國際等，與公司共同開發客製化的引導系統，藉由多方的產學合作計畫，讓鍾教授的研究與時俱進，與產業實務鏈結同時，也獲得政府單位的補助，如：科技部的先進製造技術、人工智慧等專題計畫，使研究更為完備。

研發能量源源不絕

鍾文仁教授在中原大學任教已逾 25 年，曾榮獲 3 次優良導師、1 次合作耕耘獎、1 次卓越技轉獎、2 次研究傑出教授及 4 次優良技轉獎，著有《IC 封裝製程與 CAE 應用》、《電腦輔助模具設計》等二書，並培育出 9 位博士與近百位的碩士研究人才，其中目前有 3 位博士及 3 位碩士留在中原大學繼續研究工作，因此，鍾老師的研究品質及能量是穩定提升的。此外，其開放式的教學方式，給予學生充足的探索空間，適時地從中輔導支持，幫助學生在研究及學習中培養興趣。除了課業之外，也非常注重學生的全人發展，與學生間有著亦師亦友之情誼。

引領科技邁向未來

隨著工業 4.0、人工智慧的新趨勢，全球產業皆面臨轉型與創新，鍾文仁教授、陳夏宗教授與王世明教授，在多年的產學合作與研究基礎上，以模具製造業的智慧轉型為願景，共同組成了智慧製造研發團隊，在三位教授之帶領下，在 2017 年設立了智慧製造研發中心，以發展智慧模具設計、製造與成型領域之創新研發能力，並建立具有前瞻性之射出成型智慧製造為基礎，延伸至人工智慧領域，主要協助國內頂尖人才之培訓及推展產學合作等業務，該中心座落於智慧創新產學大樓，其一樓為智慧製造示範產線、3D 列印室及機器人展示區域，二樓為研發團隊開發基地與培訓空間等；團隊致力將智慧製造技術落實在製造產線上，回饋社會提供技術輔導，也象徵著教授們 20 年來研究發展的里程碑。除此之外，鍾教授多次受邀做「AI 與智慧製造」和「AI 與智慧生活」的專題演講的分享，讓更多人了解 AI 人工智慧如何為生活體驗帶來更高的品質。

Research focus

Professor Wen-Ren, Jong graduated from the Department of Power Mechanical Engineering of National Tsing Hua University in 1982 and completed his master's and doctoral degrees in Mechanical Engineering at Cornell University. He followed the footsteps of Dr. Kuo-King Wang and joined the Cornell Injection Molding Project (CIMP). Since then, he has been dedicated on the research of mold design/manufacturing related technologies for plastic molding.

In 1993, he started to work in Chung Yuan Christian University. His researches focus on mold design/manufacturing navigating system, AI scheduling system and smart manufacturing. The mold design/manufacturing navigating system is based on CAD software to integrate the domain knowledge

into a knowledge-oriented interactive interface, to achieve the goals of digitized, standardized, intelligent, automated, customized and collaborative platform. AI scheduling system, instead of traditional way of try and error, analyzes the key impact factors and high-risk procedures in advance and provide feedback to the design and planning phase for earlier improvement and knowledge accumulation, bringing high efficiency, high quality and high value to the mold manufacturing industry.

Experience sharing

In 2005, the projects with Jabil Green Point Corp. began the study about mold design navigating system, and then Professor Jong continued to cooperate with many enterprises, such as: Lite-On Technology Corp., Industrial Technology Research Institute, Qisda Corp., Chi Mei Optoelectronics Corp., Hiwin Technology Corp., Inventec Appliances Corp., etc. These projects mainly focus on developing a customized mold design/manufacturing navigating system. Therefore, Prof. Jong's research always keep pace with the trends of technology. At the same time, he also receives subsidies from governmental projects, such as the Advanced Manufacturing Project and Innovative Artificial Intelligence Project from Ministry of Science and Technology.

Professor Jong has worked in Chung Yuan Christian University for more than 25 years. He is awarded “Excellent Tutors” three times, “Outstanding Cooperative Award” several times, and “Distinguished Research Professor” 2 times. He has nurtured 9 Ph. D and nearly 100 Masters. His teaching method gives students ample space of exploring and support them timely to develop interest in research. He also pays attention to students’ development of holistic education and always has good friendship with the students.

With the trend of Industry 4.0 and artificial intelligence, global industry is facing transformation and innovation. Professor Shia-Chung Chen, Professor Shih-Ming Wang and Professor Wen-Ren Jong create a R&D team for smart manufacturing, based on the decades of research experience. They established the R&D center of Smart Manufacturing in 2017 in order to develop innovative R&D capabilities in mold design, manufacturing and molding, which has focused on smart manufacturing and extends to Artificial Intelligence. The center is located in the Smart Innovative Operation Building of CYCU which demonstrates a smart manufacturing product line, a 3D printing room and a robot display area on the first floor. The team is committed to implementing smart-manufacturing technologies and giving feedback to the society by providing technical counseling. It also symbolizes the milestones of these three

professors' research and development for over the past 20 years. Moreover, recently Professor Jong has been invited to give some AI-related keynote speeches. Through the sharing, more people can understand how AI brings higher quality to our life.