

Association of Overseas Chinese Agricultural,
Biological, and Food Engineers (AOCABFE)

海外華人農業、生物及食品工程師協會

IMPACT

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IMPACT is an electronic newsletter of AOCABFE and is published quarterly to inform members within the association (or, other subscribers applied). We invite you to submit comments, story ideas or news to our editors.

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<http://www.AOC-web.org> <http://aoc.cau.edu.cn>

Greetings from President



Dear AOC Family and Friends:

It is my great pleasure to serve AOC as the president for the year of 2010-2011. I take this opportunity with great honor, passion, sense of responsibility and commitment.

Under the strong leadership of eight past presidents and eleven executive boards as well as the support from all of you, AOC has become a well-established and well-recognized professional society for promoting information exchange and networking among AOC members and worldwide professionals. To continue the success of AOC in the past nine years, I propose to focus our efforts primarily on, but not limited to, the following areas for this coming year.

1. Membership and member services

As a developing organization, membership development remains to be a major task for AOC. We will continue to recruit new members in North America, China, Europe and other regions of the world. We will continue effort for establishment of AOC lifetime members and fellows to honor those who are members of unusual prominence.

Meanwhile, we will also provide valuable professional services to all of our members through various activities. Sponsoring or co-sponsoring technical conferences is one of many ways to serve our members for networking and professional development. Efforts will be made to promote interaction between our student members and regular members. Awards for excellence in graduate leadership and service, graduate scholarly achievement will be given out to outstanding student members. Annual graduate student research paper competition will be continued to promote professional development for our pre-professionals. In addition, excellences and achievements of our regular members will also be recognized through two awards, "Early Career Award" and "Distinguished Career Award".

2. Communications

The quarterly AOC newsletter, IMPACT, and the AOC website (<http://www.aoc-web.org/>) are the bridges to link AOC with the rest of the world. To continue the excellence of the newsletter and the website, the newsletter editorial team under the leadership of Dr. Yufeng Ge, and the web manager, Dr. Juhua Liu, will strive to provide information of AOC activities in a timely manner to best serve the need for communication among our members around the world. I hereby also call for supports from all of you by contributing /sharing information, news, and suggestions.

3. Joint AOC and CSAE E-journal

In 2008, AOC and the Chinese Society of Agricultural Engineers (CASE) successfully launched a joint English E-journal, the International Journal of Agricultural and Biological Engineering (IJABE). The IJABE is a peer-reviewed open-access journal. It serves our AOC members and peers around the world to support mission of the AOC in terms of information exchange, collaboration in

research, educational exchange, technology transfer, and professional development. Thanks to diligent work by the editorial team of the Journal. It has been evaluated and covered by CA, CAB abstracts, CAB Full-Text Respository, Inspec, DOAJ and Open-Gate. However, as many other new born journals, the IJABE is facing some challenges in obtaining high quality submissions, and efficient review process. In this year, AOC needs to make every possible effort to support growth of the journal. I highly encourage your participation and contribution to nurture and promote our own journal. You may learn more about this journal at <http://www.ijabe.org/index.php/ijabe/index>.

4. Collaborations

Collaboration with our counterparts in our home country, China, has always been one of the most important activities for AOC. We will continue to strengthen the working relationship with the Chinese Society of Agricultural Engineers (CASE), the Chinese Society for Agricultural Machineries (CSAM). To strengthen our partnership with American Society of Agricultural and Biological Engineers (ASABE), we will continue to bring large numbers of Chinese Agricultural, Biological, and Food Engineers into ASABE, and to bridge CSAE/CSAM with ASABE for their common interests and needs.

Yangling International Academy for Modern Agriculture has been formally established on July 9 2010. This platform will become a base for us to better assist our Chinese counterpart in developing specific education and research programs in areas of agricultural, biological and food engineering. Thanks to the diligent work by the AOC Yangling project committee and our Chinese partners, the Shaanxi provincial government has agreed to financially support the establishment of the center. AOC will continue to work with NWFU and provide an effective platform for our members to collaborate with our Chinese counterparts.

5. AOC foundation and fund raising

Last, but not least, we will continue to enhance our efforts for fund raising to support our AOC activities. All donations, small ones, or big ones are greatly appreciated and will be used for benefits of our members and the society.

With continuations of our passion for AOC, our commitment to AOC and our confidence in AOC, I believe we will be able to continue the success of AOC and to make significant impact on our societies. I welcome suggestions and advices for better serving this society and thank you for your supports and participations!

Look forward to working with you for a rewarding year.

Best Wishes,



Yubin Lan **President** of AOC for the year of 2010-2011

Newsletter Editorial Board 2010-2011

Editor: Yufeng Ge got his BS and MS degree from Nanjing Forestry University, China and PhD from TAMU. Presently he is a research assistant professor, and doing research on cotton engineering/biofuel/sensor development. Yufeng loves playing badminton (competed in Houston Open twice) and reading. Oh...BTW, he is also a new dad now...



Associate Editor: 王冰清, 男, 籍贯河北石家庄, 本科毕业于南京农业大学食品院生物工程专业, 现就读于美国北卡州立大学生物农业工程系, 生物过程控制方向, 主要研究高附加值产品低成本转化, 刚刚顺利完成硕士第一年的学习和研究。望当今国内, 出国留学热潮正成逐渐汹涌之势, 本人幸运地成为其中的一员, 带着对知识的渴望以及追逐梦想的信念来到了美国这片世界学子的圣地, 更有幸就读于北卡州立大学, 这所历史悠久, 在各个领域尤其是工学界满载盛誉的学府, 继续坚持自己喜爱并一直致力于的微生物发酵领域。2010年夏天得幸参加一年一度国际农业与生物工程聚会, 收获颇丰, 不仅在报告中提升了个人在台上的自信, 也在与业内高手“切磋”中增长了经验和学识, 但最大的收获在于结识了

AOC中的各位朋友, 被这种在异国浓浓的祖国氛围所感染, 感受到了从未有过的温暖, 原来还有许许多多和自己一样怀揣梦想一起战斗在异国土地上的战友。凭着对学术和工作的热情, 本人自愿加入AOC, 为各位成员服务, 现作为IMPACT杂志编辑之一继续发挥自己的热量, 正如我的人生信条一样: 走自己的路, 留自己的汗, 过自己的生活。相信这段在AOC服务的日子, 必将会为我人生的道路平添几分美景, 我的汗水也必将化作丰硕的果实, 在收获的季节里, 与各位友人共享。

Associate Editor: Zhenglin Luo got his bachelor's degree in Northwest A&F University in 2008. After that, he studied entomology in Auburn University briefly and then transferred to NC A&T State University, continuing his MS degree in Chemical Engineering. His research involves bioethanol and acetic acid production from biomass. Zhenglin attended the 2010 ASABE International meeting in Pittsburg, and was excited to learn about AOC. He is also excited about being an Associate Editor for IMPACT and hopes to make great contributions to AOC family.



Honors and Awards - AOC Student Paper Award

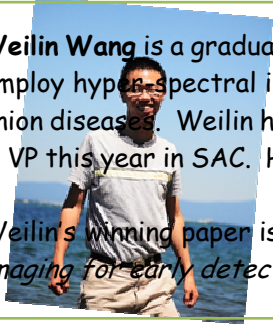
Xuan Li is a Ph.D student at U. Cal. @ Davis. His research focuses on the development of a sustainable infrared dry-peeling method for fruits and vegetables. He presently serves as in the SAC Board of AOC. Xuan likes swimming, cycling, and table tennis.

Xuan Li's winning paper is titled: "*Geometrical characteristics and model development of processing tomatoes*".



Weilin Wang is a graduate student at UGA. His current research topic is to employ hyper-spectral imaging and X-ray to test onion quality and inspect onion diseases. Weilin has been an AOC student member for two years, and is VP this year in SAC. He likes table tennis, watching movie, and swimming.

Weilin's winning paper is titled: "*Near-infrared hyperspectral reflectance imaging for early detection of sour skin disease in Vidalia sweet onions*".



is a PhD student at Michigan State University. Her area of expertise technologies for the quality evaluation of agricultural and food products. c in publication, and won a number of prestigious ASABE awards. She tennis, cooking, reading, and dancing.

ing paper is titled: "*Optimization of the hyperspectral imaging-based solved systems for measuring the optical properties of biological*



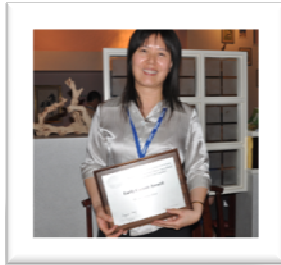
Dr. Zhen Li is a lecturer in College of Engineering, South China Agricultural University. A former PhD and post-doc researcher in OKState, Li's specialization is in wireless sensor network and agriculture automation. He has been an AOC member since 2008.

Zhen's winning paper is titled: "*Experimental path-loss models for 2.4 GHz in field wireless sensor network*".



Huang, Haibo is also a winner of the student paper award. However, the editorial board was not able to get a hold on him by the deadline of our release... Anyway, his winning paper is titled: "Magnetic nanoparticles based magnetophoresis for efficient separation of food pathogens".

Honors and Awards - Faculty and Student Awards



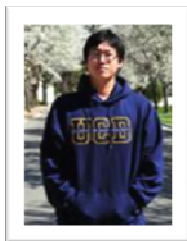
Lingying Zhao was the recipient of 2010 AOC Early Career Award. A 14-year member of ASABE, Dr. Zhao is an associate professor at Ohio State University and conducting research on air quality and environmental monitoring and control system.



Ruihong Zhang was the recipient of 2010 AOC Career Award. Professor of Biological & Agricultural Engineering at U Cal. Davis, Dr. Zhang has 20+ years of research and teaching experience in bioenvironmental engineering and bioenergy systems. She has been very productive in scientific publications and won several prestigious professional awards by ASABE and USEPA. Dr. Zhang has also made great



Zhen Li @ OKState was the recipient of 2010 AOC Graduate Scholarly Award. You all have seen his brief bio in the page above.




Xiguang Chen won 2010AOC Student Service Award. Xiguang is a Ph.D. student at U Cal. @Davis. Xiguang has joined AOC since 2008, and have been actively involved in student activities ever since.

***Kodus on our faculty members
And graduate students
Keep up the great work !***


THE 2397TH ACADEMIC AWARDS

THIS YEAR'S HONOREES FOR OUTSTANDING ACHIEVEMENTS IN THE ACADEMIC ARTS




BEST SUPPORTING AUTHOR

Charles Willard for most contribution by a third author.




BEST SPECIAL EFFECTS IN A GRAPH

Kristen Mechoso for her use of a 3D plot for 2D data.




BEST ANIMATED POWERPOINT SLIDE

Sanjay Rajagopalan for his innovative use of exploding clip art.



BEST ADAPTED RESEARCH

Jennifer Lee for applying someone else's method to somebody else's problem.



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Reports from Treasurer (Yanbo Huang)

Income		Expense	
Balance as of Jun 2010	13,375.30	Web maintenance	155.40
New member (student banquet)	45.00	T-shirt shipping	37.48
Meal (student banquet)	377.00	Awards	800.00
New member (award banquet)	0.00	Award cost	157.84
Meal (award banquet)	1,390.00	Banquet brochure printing	118.00
		Student banquet	1,200.00
		Award banquet	3,683.00
Total	15187.30	Total	9035.58



Minutes of AOC Executive Board Teleconference

Prepared by Yufeng Ge, Secretary, AOC

Friday, Jun-04-2010, 3:10 to 5:00 PM Central Time

Present

Xiguang Chen, Yufeng Ge, Yanbo Huang, Yubin Lan, Changying Li, Jude Liu, Juhua Liu, Zhongli Pan, Zhuping Sheng, Ruixiu Sui, Lingjuan Wang, Qiang Zhang

Call to order

AOC President, Dr. Lingjuan Wang, called the meeting to order at 3:10 PM Central Time.

Approval of Minutes

Dr. Zhongli Pan made a motion to approve the meeting minutes in April. The motion was seconded by Dr. Zhuping Sheng and carried through unanimously.

Official Chinese name for AOC

Dr. Qiang Zhang updated about the progress on AOC name change. The official Chinese name for AOC is: “海外华人农业、生物和食品工程师协会”.

Dr. Zhang also proposed an amendment in Bylaws. Dr. Sui made a motion to approve what Dr. Zhang proposed; and Dr. Yubin Lan seconded the motion, on which will be voted at the business meeting.

AOC business meeting planning

Dr. Ruixiu Sui reported to the board about the AOC annual business meeting planning. The board discussed about the items that need to be covered in the agenda. Dr. Sui requested slides from different committees. Dr. Sui indicated he would compile these slides for

representation at the business meeting. Dr. Zhuping Sheng would be responsible for banquet agenda production and printing. Dr. Sui also asked for student assistance for registration, membership fee collection and selling banquet tickets.

Treasurer's report

Dr. Yanbo Huang led the discussion on tickets for attending the AOC annual business banquet. Ambiguities were clarified for how much should be charged for members and non-members (\$75), students (\$15) and guests from China (\$15). For the student banquet, tickets would be sold at \$5 regardless of the membership status; and \$20 for guests and their family.

IMPACT update

Dr. Zhuping Sheng indicated that the next issue of Impact would include the information about current/incoming AOC Presidents. Information on the AOC annual business meeting and board members would also be included. The next issue of Impact would come out on Jun 16. Dr. Sheng also expressed his appreciation for the great job done by three associate editors.

Election and awards

Dr. Zhongli Pan identified four candidates for member-at-large vacancies: Yufeng Ge, Yingkuan Wang, Jiele Xu, and Lingyin Zhao. The candidate for president-in-elect is Dr. Ning Wang. There were three nominations for faculty awards: Dr. RuiHong Zhang for distinguished professorship award, and Drs. WenQiao Yuan and Lingyin Zhao for early career award.

Technical support database

Dr. Changying Li reported to the board about updates of the technology database. He suggested adding PostDocs and personnel from industry into this database.

IJABE

Drs. Roger Ruan and Yingkuan Wang reported to the board about the current status of IJABE. They indicated that the mirror site has been working well. They encouraged AOC members to submit more manuscripts. The journal has been indexed by Elsevier, Scopus, and AGRICOLA. Issues such as sustaining

development and potential sources of funding/income for the journal were discussed. Dr. Yubin Lan made a motion for AOC co-sponsoring future professional meetings and conferences. The motion was seconded by Dr. Yanbo Huang and then approved by the board.

Student activities

Ms. GanJing was elected as the new president for SAC.

Adjourn

The meeting was adjourned at 5:00 PM Central Time.



NEWTON'S THREE LAWS OF GRADUATION

Though famous for his seminal work in Mechanics, Isaac Newton's theories on the prediction of a doctoral graduation formulated while still a grad student at Cambridge remain his most important contribution to academia.

FIRST LAW

"A grad student in procrastination tends to stay in procrastination unless an external force is applied to it"

This postulate is known as the "**Law of Inertia**" and was originally discovered experimentally by Galileo four years before Newton was born when he threatened to cut his grad student's funding. This resulted in a quickening of the student's research progress.

Galileo's observations were later perfected by Descartes through the application of "Weekly Meetings."

Before Galileo's time, it was wrongfully thought that grad students would rest only as long as no work was required of them and that in the absence of external forces, they would graduate by themselves.

(From Encyclopaedia Britannica)

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JORGE CHAM ©THE STANFORD DAILY



The editorial board would like to emphasize that this section is intended to be entertaining for our graduate students and their good natured rivalry, a.k.a. professors.

In a recent trip to LSU, I found this list on the desk of some PhD student, who allows me to share it with someone else.

PhD acronyms

- Patiently Hoping for a Degree
- Professorship? Hah! Dream on!
- Please Hire. Desperate
- PHilosophically Disturbed
- Probably Headed for Divorce
- Probably Heavily in Debt
- Patiently Headed Downhill
- Permanent Head Damage
- Potential Heavy Drinker
- Professional Hamburger Dispenser. "Would you like fries with that?"
- Pizza Hut Driver
- Pretty Heavily Depressed
- Pretty Heavy Diploma
- Pretty Horrible Dissertation
- ... and the funniest of them all - PHilosophiae Doctor

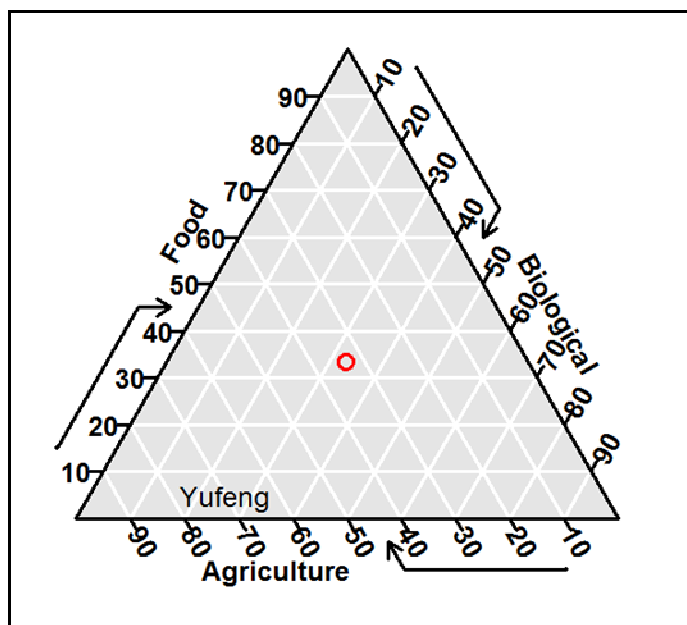
Email us at ge_yf@hotmail.com if you have funnier acronyms for PHD.

Where are you in the ABFE triangle?

Soil scientists use soil textural triangle to express soil texture classes and categorize soil samples. Soil texture classes are determined by soils' CLAY, SILT, and SAND fractions. Realizing the usefulness of soil textural triangle, Hengl and Heuvelink (2003) innovatively adapted it to classify a group of pedometricians into soil scientist, geostatistician, and mathematician. They were able to identify peers sharing similar interests and hot areas from the clustering pattern of the triangle.

Inspired by their work, we would like to use this technique to classify AOC members into Agricultural, Biological, and Food Engineers, thus the ABFE triangle.

Here is how we are entered ABFE triangle. For example, Yufeng considers himself as a 70% agricultural engineer, 25% biological engineer, and 5% food engineer. Therefore his location in the ABFE triangle is on left bottom. If one consider himself as a 1/3 agricultural engineer, 1/3 biological engineer, and 1/3 food engineer, his/her location is at the center (the red dot) of the ABFE triangle. Ok, I think everyone knows how this works out. If you want to participate in this, please email us (ge_yf@hotmail.com) the fractions of your identity (i.e., what percentage you belong to these three categories), and we will produce an ABFE triangle with everyone's name on it. We would like to acknowledge Moeys, J., and S. Wei (2010) for the "soiltexture" package in R. It enables us to draw the triangle pretty quickly.



References

- Hengl, T., and G. Heuvelink. 2003. To which profile do you fit the best. *ΠΕΔΟΜΕΤΡΟΝ* 15:8-9.
- Moeys, J., and S. Wei. 2010. Soiltexture: Functions for soil texture plot, classification and transformation. R package version 1.02. <http://soiltexture.r-forge.r-project.org/>



“脚踏实地，淡薄名利；勤奋求实，开拓进取”，这是德高望重的农业工程专家汪懋华院士的座右铭。汪院士以其对工程科技的无限热爱，数十年如一日孜孜以求，全身心地投入到自己所从事的科研事业，取得了世人瞩目的巨大成就，为我国农业工程学科走向世界，乃至世界工程科技的发展，做出了卓越的贡献。汪院士严谨求实的治学精神、乐观豁达的处事态度、坚韧不拔的毅力、虚怀若谷的品德，都是我们学习的典范和楷模。在征得汪院士的同意后，我在这里推荐这篇由经济日报记者采写的文章，供大家参考，希望我们大家从中学到更多做人、做事、做学问的道理。

精耕细作洒汗水，沃土良田织锦绣

中国工程院院士、农业工程—电子信息技术与自动化专家 汪懋华

本报记者 陈颐 [2010年4月4日 经济日报第8版]

院士生涯

汪懋华，1932年出生于广东省兴宁市，1956年6月毕业于原北京农业机械化学院农业机械系，1962年6月获前苏联技术科学（电气自动化）副博士学位后回到母校电气化系（现中国农业大学信息与电气工程学院）任教至今。现任教育部现代精细农业系统集成研究重点实验室学术委员会主任。1995年当选为中国工程院院士。长期从事农业电气自动化和农业电子信息科学技术研究，是我国承上启下的农业工程学科与教育事业的主要学科带头人。现任联合国亚太农业工程与机械中心技术委员会、理事会成员等，是国内外农业工程学界富有重要影响的工程科技专家，被国际农业工程师协会授予会士（Fellow）荣誉称号，对我国农业工程学科走向世界起到引领作用。他专长于农业装备机电一体化与自动化、农业应用电子技术与信息化、“精细农业”技术体系及智能信息支持技术等。

院士寄语

提升农业机械与装备自主创新能力

人的生命是有限的。自己选择的学习方向和职业生涯、个人对社会的贡献和环境与机遇有关。我的座右铭就是：“脚踏实地，淡薄名利；勤奋求实，开拓进取”。既然我年轻时就选择了学习工程科技为农业、农村、农民服务的方向，就要在这一方向上有强烈的求知欲望和踏实学习的精神。要喜欢深入实践，努力跟踪相关领域科学技术的进步，具有不断学习，认真积累知识潜能的精神。个人的力量是渺小的，为事业作贡献需要群体的智慧和协力。科学精神与功利主义不能相容，良好的生活心态才是健康和幸福的保证。

工程技术是引起20世纪巨变的原动力之一，工程是连接科学发现、技术发明和产业发展之间的桥梁，是实现产业革命、经济发展和社会文明进步的强大杠杆。在工程实践中，既要重视突破性的工程创新，也要重视渐进性的工程创新。人类的知识就是不断获得、不断积累、不断综合、不断创新、不断发展的。

提升农业机械化与装备自主创新能力是当务之急。一是要加强农业机械化与现代农业装备发展战略与技术发展路径的研究，研究国家中长期经济社会发展与实现中国特色农业现代化的战略需求，扩展视角，审视差距；二是农机要与农艺密切结合，通过优化品种选育和作业工艺创新，协力突破农业机械化作业与装备创新的瓶颈性科学技术难题；三是大力发展节能机械化工艺与装备研究；四是拓展农业机械化服务发展空间，围绕实现主要农田作业和养殖产业繁重劳动全过程机械化的要求，提高农业机械装备高端产品自主创新能力和机电一体化技术融合研究，适应农业规模化、精准化、设施化等要求；五是进行丘陵山区农业机械化及小型装备创新研究，

深入了解不同地区丘陵山区自然、经济、社会特点，大力推进先进适用的小型农业和特种作业机械化装备技术，

创新与提升小型多功能农、林、牧装备制造业自主研发创新能力；六是关注国际农业装备科技新发展，通过产、学、研结合，积极推动农业装备技术基础性与前瞻性科学技术研究。

在机遇与挑战并存的今天，我们要有一定前瞻性的思考，扎扎实实，一步步地为国家作出更大的贡献。

记者访谈 (2010-3-1)

如果让我用一句虎年流行的成语来描述见到汪懋华院士的第一印象，那就是“生龙活虎”。在中国农业大学的办公室里，他说自己是“行动快、走路快、吃饭快、睡着快。”77岁的汪懋华声音洪亮底气足，带着激情讲述他所从事的农业工程研究和教书育人，说到高兴处便开心地大声笑起来。人们常说，性格决定命运，汪懋华以坚毅乐观的性格，开拓出一条永远进取的人生道路。

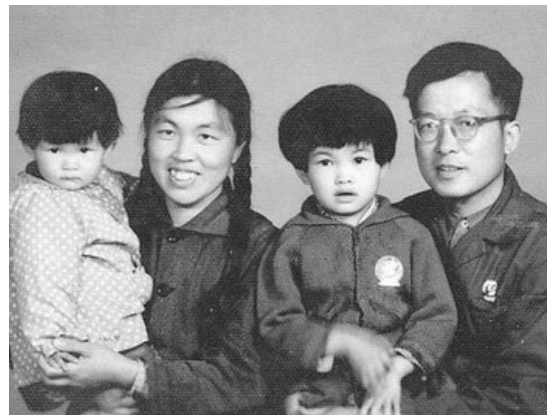
家贫志坚 一线锻炼

“童年的经历培养了我吃苦耐劳的品德和自力更生的精神，使我一生做人追求实在、勤奋、朴素和热心。”

1932年的冬天，汪懋华在广东省兴宁市出生。那一年，妈妈只有17岁，喜欢当记者的爸爸离家远走。

不识字的妈妈含辛茹苦，一边要照顾公婆，一边要养活儿子，靠做帽子和各种香包养活一家老小。“我家里的生产工具就是一台缝纫机。我从小就学会了帮助妈妈干活。晚上我按模板剪裁帽子布料，妈妈日夜做缝纫，我放学后再把成品拿到街上的小店铺去推销。”汪懋华说：“童年的经历培养了我吃苦耐劳的品德和自力更生的精神，使我一生做人追求实在、勤奋、朴素和热心。”

汪懋华的学习成绩在兴宁一中一直名列前茅，但贫寒的家境使他不敢想自己能去上大学。命运垂青能吃苦的人，多年没有音信的父亲托他在广东教育厅工作的朋友来信转达，愿意出钱供儿子上大学。当时全广东惟一的考场在广州，汪懋华与40多名同学一起乘大卡车赶了100多里山路，再换乘一条人工撑篙的木船，沿东江而下，两天两夜后到达广州长堤上岸。“我们这是背水一战。每个人都面临三个选择，如果考入南方大学和中原大学这两所学校，就有饭吃，有衣穿，生活不发愁。但我想考到北京上大学。”汪懋华说起埋藏在心中的一个美好愿望。“当时在中国放映的前苏联电影《幸福的生活》中有一首《丰收之歌》非常流行，我看着影片中田野里那一望无际的金色麦浪，心里特别激动。我数理化好，我要选择一个亦工亦农的专业。”



功夫不负有心人，汪懋华梦想成真，以优异成绩考入北京农业大学农机系。妈妈卖掉她多年积蓄的棉纱，凑足了30多块钱的火车票和儿子在北京上学的费用。1951年9月，汪懋华拿着一个小布包袱踏上求学之路，这一去六年未归。儿行千里母担忧，有主见的妈妈在老家参加了妇女识字班，由文盲学会认字，慢慢学会可以读懂远在北京儿子的来信。“妈妈现在94岁了，耳朵全聋了，幸好她识字，我回家时，我们俩就用小白板写字进行对话。”汪懋华充满感情地说。

那六年的春节，他都是一个人在学校度过。“校园里空荡荡的，我有足够的时间看书学习。对我这个来自穷乡僻壤的孩子来说，已经是极大的满足。根据当时教学计划要求，一年级全体学生不分专业，到学校实习农场参加半年全过程北方农艺实践和农业综合专题课程学习，使我直接接触了许多农户和农学各领域的入门实践，我至今还保留着当时的田间记录和部分日记。一年级的学习启示我认识了实践是学习的好课堂，培育了我对农业科学和农民的朴素感情。在大学一年级，我就接触到了拖拉机。”这成为汪懋华与农业工程相伴一生的开始。

1953年1月，根据国家开垦华南天然橡胶生产基地的战略需要，汪懋华响应号召，参加带领37位同学到华南垦殖局参加机械化垦荒，单独被分配到海南岛澄迈县的一个拖拉机垦荒队。回忆当时的情景，汪懋华记忆中是每天驾驶着拖拉机，在未开垦的荒野中开垦，把青春的热情和汗水耕耘进广袤无垠的大地。“那段日子虽然非常艰苦，但我如饥似渴地体验着工程实践的乐趣。白天驾驶拖拉机开垦荒地，晚上在工棚里的煤油灯下自学拖拉机使用原理，根据在实际操作、保养和故障分析中的问题，对照书本弄清道理。垦荒机器来自前苏联，说明书都是俄语。当时每个拖拉机站有两位前苏联专家进行技术指导，于是我和其它3位各自在不同拖拉机工作的同学一起，约定每隔一周就步行往返几十里荒野，用自学的俄语一起向前苏联专家请教咨询，这也为我们自学俄语提供了实践的机会。”

半年时间边学边干的垦荒经历使汪懋华受益匪浅，也使他在大学毕业后顺利考取了留苏预备研究生。学校领导基于新专业建设的需要，建议他改学农业电气化专业。汪懋华在三年半的留学岁月里，如饥似渴地学习学科专业知识，拓宽科研思路，开阔学术视野。1962年，汪懋华以全优的成绩结束学习，获得了前苏联技术科学副博士学位，回到祖国开始新的历程。

广阔天地 播种育人

“只有将所学的知识结合我国农业发展现状，经过不断创新去造福人民，这才是一个合格的农业工程师。”

“人的一生很可能不会只从事一种职业。”汪懋华追忆往事说，“一个人的专业也许会随着人生的机遇和个人兴趣爱好转变，应去多了解外面的世界，开拓自己的科技视野。”在他排得满满的工作日程表上，几乎每天从早到晚都有安排，每项工作一环紧扣着另一环。“从小养成自力更生的习惯，我什么事情都要自己去做。我每年有20多场报告，报告中的每一个字都是我亲自在计算机上敲出来的，所有的PPT都是我自己做的。我是一个对工作非常严肃认真的人，我写出的英文单词要保证每个单词都不拼错。”就是凭着这种认真负责的优秀品质，汪懋华在耕耘农业电气事业的广阔天地里，不断开垦出新的沃土良田。

原北京农业机械化学院农业电气化系成立之初，主要工作是从事农业供电和电能在农业中的应用研究。1962年汪懋华从前苏联回国后，根据自己的留学经历和当时半导体技术的发展现状敏锐地感到，将自动化技术应用于农业是一个大有作为的领域，随即着手开拓性的研究工作。1978年，我国高等农业院校中的第一个自动化教研室在他的努力下成立了。他带领教师们一方面系统地跟踪学习微电子技术，一方面到农村和工厂寻找应用对象。在此期间他先后成功地完成了节能电机、电热育苗、电牧栏装置、电子顺序控制器等课题的研制和推广。上世纪80年代初，微处理器在中国刚一露头，汪懋华率先将它成功地应用在拖拉机性能测试、孵化机控制、奶牛饲养管理自动化研究等农业领域。

汪懋华热爱讲课，在他常年的教学生涯中，始终坚持理论学习与勤于实践密切结合。1984年汪懋华出任原北京农业机械化学院副院长一职，他舍不得离开讲台，提出的条件是要把“户口”保留在教研室而不是校长办

公室，为继续坚持教学科研第一线的工作和之后再回到教学讲台铺好后路。当时我国农业工程高等教育正面临着如何进行改革，以适应中国农业发展的客观需要这一大课题，汪懋华根据国际农业科技发展和新技术革命浪潮，提出了和国际农业工程学科发展与高等教育尽快实现接轨的改革目标，强调学校的发展战略应该突出工程为农业、农村、农民服务的指导思想。经过他积极倡导、提出论证以及各方面的共同努力，1985年经原国家教委正式批准，原北京农业机械化学院正式更名为北京农业工程大学，这次更名对我国农业学科体系和教育事业的发展产生了重大影响。

汪懋华在课堂教学和下田机耕土地中享受着丰收的喜悦。他经常教育学生们说：“要勤奋好学；要严谨踏实；要有比较坚实的基础和宽广的知识面；要学会自学，专业学习要带着问题去学；要重视工程实践和具有基本职业技能；要有开放的思维方式，广交朋友。只有将所学的知识结合我国农业发展现状，经过不断创新去造福人民，这才是一个合格的农业工程师。”



汪懋华和学生们在一起



汪懋华在国外考察变量施肥机



汪懋华在前苏联留学时的照片

在汪懋华的学生中，还有一些来自亚洲国家，这番经历是汪懋华教学生涯中的一段特殊插曲。1990年，原国家教委派遣汪懋华去曼谷亚洲理工学院任教，为该院学生开设研究生课程和指导研究生。汪懋华面对的不仅是来自亚洲各国带有不同文化背景和教育传统的学生，还要与来自许多国家的专家共同工作。汪懋华并没有应用英语在国外任教和工作的经历，接受任务后压力很大。汪懋华说：“我有一种珍惜一切机会的决心和不甘示弱的奋进精神，做什么都可以想出办法。在教学方面，我自信我的业务背景，所以我不怕。说到英文，当时在课堂上已经采用投影教学了，学生们看投影上的文字就能明白了。但是外国学生上课喜欢随时举手提问题，为了能听懂学生们的问题，我就去旁听来自英国和印度两个不同语音地区教师的课，熟悉各种语调，研究他们的

教学内容和方法，取人之长，补己之短。”

汪懋华下定决心，在曼谷亚洲理工学院树立中国教授的良好形象，他又拿出他在上大学时刻苦学习的拼劲

了。他笑着说：“我实际上是以双倍于工作日的时间去工作。曼谷亚洲理工学院的工作时间是每天7:30开始到15:00结束。那些外国教授们时间一到就乘班车回城里了，学院楼里常常是几乎就留下我一个教授继续工作，我需要拓宽知识与实践能力，重组自己的知识结构，适应新的教学大纲和教学方法。”汪懋华拿出一张他卷着裤腿在水田里操作手扶拖拉机的照片说：“那天我在校园的试验田里教学生开拖拉机，正巧院长从那里过，看到我赤脚下田大加赞赏说，‘中国的教授真了不起，登上讲台能讲课，下田能开拖拉机。’”

任职即将期满时，许多教师和学生要求留住汪懋华，校长还直接下了聘书极力争取高薪聘他留任。这一切努力最终未能改变汪懋华作为国家公派出国服务人员应按期回国之心。汪懋华总结在国外教学时的收获说：“人不仅要努力，还要敢冲出去，争取采用多种方式学习看待问题、处理问题和解决问题的方法。在国外教学两年的经历和实践，对我开拓学术思想，理解多元文化、思维、观念，研究教育思想，扩大国际学术活动空间都有很好的帮助。”

国际舞台 全家上阵

“大女儿读的博士专业正好和我对口，因此我们能够在业务上交流很多，现在我是从大女儿那里请教了！”

汪懋华对自己的家庭很满意。“我没有家庭包袱。妈妈在广州住在当医生的妹妹那里，受到很好的照顾。妻子是大学时代的校友，学的也是农业机械，大女儿在北京农业大学读完应用电子技术专业硕士学位后，又先后在曼谷亚洲理工学院获得工业工程硕士和在美国堪萨斯州立大学分别获得电气电子工程硕士学位和农业与生物工程学科工学博士学位，在经历了博士后研究基础上，她应聘到加拿大麦吉尔大学和现在美国俄克拉荷马州立大学担任科研教学工作。小女儿大学毕业后，就留在了北京工作。”

一大家子事情，汪懋华说得如此简单，在他心里，这是顺其自然，水到渠成的事情。“我30岁才谈恋爱，我也不担心找不到对象。”他说到这里就笑了起来，“我在学校上学时就是团总支委员，负责宣传工作。我有自己的章法，每到吃饭的时候，端着饭碗到各桌找人交流工作，这样也就认识了许多女同学。”这么多女生也没有走入汪懋华心中的情感世界。但当他1962年从莫斯科留学回国前，一个最要好的老同学就说要给他介绍一个学农机的女朋友，“他把我拉到一旁，我一听名字心里就有数了。那时候一年级的班干部开始都是我参加挑选的，当然记得，那个女生是一个性格文静、很踏实的班团支部委员，北京人，也熟悉，毕业后在北京农业大学农机教研室当老师。我们就这样恋爱结婚了。”

汪懋华提起和他学同一个专业的大女儿时，做父亲的自豪溢于言表，“我家里的教育环境很宽松，大女儿读的博士专业正好和我对口，因此我们能够在业务上交流很多，现在我是从大女儿那里请教了。她很少回来，因此我们经常能见到面的场合是国际学术活动和会议上了。每次开完会，我们就租一辆车，尽可能地跑许多地方，去国外的农场调研，和农场主交谈了解更多的信息，我们在一起不仅享受了父女团圆的乐趣，也在学习许多新的知识中开拓了眼界，我们沉浸在其中，自得其乐。”

年初，77岁的汪懋华向家人宣布，早上起床不先开电脑了，“我要出去锻炼身体！”如果有一天清晨，你路过中国农业大学东校区旁的河边，看到一位男士甩开双臂疾步如飞，耳朵上还戴着iPod。如果你过去问他，“您听的是什么歌曲？”他的回答是：“我喜欢听的是歌唱草原辽阔的歌”。没错，这个人一定就是汪懋华。

科学浅说 精细农业

在传统农业的实践中，精明的农户孜孜以求的，是要获取农田现场作物生长环境与长势的信息，由信息谋划合理的生产过程管理决策，实施“精耕细作”是我国传统农业的精华。

上世纪80年代初，国际农学界提出开展基于空间差异性的农田土壤、作物科学管理研究与示范实践，也逐步容纳了当时刚开始得到应用的地理空间信息处理系统和基于逻辑思维推理的计算机专家系统技术。直到上世

纪90年代初GPS技术的民用化，才使基于农田空间差异性信息管理现代集约化农作过程的科学理念得以大面积示范研究与实践，迅速推动了现代“精细农业”技术体系产业化创新的进程，并快速拓展到基于空间差异或个体信息差异信息和基于知识实施智能化科学管理大田种植业、设施园艺与养殖业、林果种植业、产品加工分选与质量管理的过程信息化。

现代信息与通信科学技术的快速发展与当今传感网、物联网、智慧网等新兴技术的兴起与快速发展，将为引领农业产业科学技术革命，培育新兴产业与服务业，建立资源节约、环境友好的可持续农业产业体系带来无限美好的前景。

2010年度China Exchange召开——参会人数突破往届



2010年6月20日至23日，美国农业与生物工程师的国际学术年会（2010 ASABE Annual International Meeting）在宾夕法尼亚州的匹兹堡会展中心隆重召开。期间，海外华人农业、生物及食品工程协会年会（AOC）也于6月22日举行。

ASABE是农业工程界的最具国际影响力的盛会，每年一届。在近几届会议中，中国农业工程界的精英参会人数逐年增加，AOC组织也日渐庞大。今年的会议在美国东海岸的宾夕法尼亚州匹兹堡举办。匹兹堡是宾州第二大城市，坐落在阿勒格尼河、莫农加希拉河与俄亥俄河的交汇处，是美国最大的内河港口之一，也是美国著名的工业城市、钢铁工业中心，有“世界钢铁之都”之称，是我国武汉、许昌的友好城市。

参加今年China Exchange的人员有来自世界各地的农业和生物工程界的科研人员，中国农机研究院、中国农业大学、浙江大学、农业部南京农机研究所等单位对此次会议十分重视，组织专家学者参会，参会人数突破历届年会。中国参会人数的增加，文章数目的增多，同行内影响力的增大，是这届会议的一大特点。在会议中，中国专家学者踊跃参与，把这次大会当作一个平台，不仅充分分享各自的先进成果，向国际专家学习请教，还广交朋友，创造了很多在国内和国际上交流与合作的机会，这必将有力地推动中国乃至全世界的农业工程发展。

本人是东北农业大学的博士研究生，于2010年三月份到美国德克萨斯州大学城USDA-ARS以访问学者身份在兰玉彬教授的实验室工作一年，因此有幸参加了这次盛会，并在大会中发言。虽然文章和报告本身自己都非常熟悉，但由于是英语发言，所以也做了一番精心的准备。报告时，会场的反响很好，与会的专家学者对我的研究很感兴趣，并一起探讨了一些问题。报告结束后，我走了很多分会场，听了很多感兴趣的报告，不但开阔了视野，增长了见识，而且对自己的研究课题还很有启发，感觉收获很大。

会议期间，还举行了海外华人农业、生物及食品工程协会年会（AOC），本人也成为该协会的一名成员。AOC协会给国人同行业内人士，提供了一个很好的交流平台。在年度工作会议上，新旧主席完成了交接，新主席上任后，在会议中当场宣布了几个重要的改革措施和对该协会前景的畅想与倡议，这些措施吸取了历届工作中的经验，对整个协会以及全国农业、生物与食品工程界都会有推动作用。AOC执委会精心组织了一些活动。AOC学生协会这一组织，也积极参与，在活动当中充分发挥了自身特点，与老朋友叙旧、结识新朋友，是未来农业、生物和食品界的后备力量。会议还表彰了过去一年里，在AOC协会工作中和该领域中表现突出的成员。AOC协会为国内的业内专家提供了一个走出国门、了解世界的国际舞台，汇集了国人智慧的越来越多的农业工程师加入其中，协会不断壮大，发展蒸蒸日上。引用这一届主席兰玉彬博士的一句话就是，“一人拾柴火不旺，众人拾柴火焰高”。

在6月22日的“China Exchange”中国专题讨论会中，中国学者将最新最前沿的研究成果与大家交流，很多院长也对当前农业、生物和食品工程界以及各自学校、学院的发展情况做了报告和总结，会场气氛热烈，吸

引了不少国外专家参与，一起讨论当前国际前沿的科研动态。

Ohio State University的Karen Mancl，做了关于中国农村水污染控制的报告，报告中包含了大量中国实地考察及实验的数据，体现了中美专家在该领域中的务实合作和良好发展前景。

青岛农业大学的胡彩旗，做了题为“Review on Development of Agricultural Machinery in China”的报告，对农业机械化在中国的发展做了综述。

浙江大学的应义斌院长，每年都非常重视这一会议，积极组织人员参会，充分利用会议的交流与学习机会，锻炼新人，谋求发展，共同推动农业、生物及食品工程这一领域在中国的发展。此次会议，他也做了题为“Sensing Technology for Genetically Modified Organisms”的报告，报告旁征博引，深入浅出，内容翔实，十分精彩，让听众受益匪浅。

中国农业机械化科学研究院的李树君院长，对中国农业机械现状和未来的展望做了精彩报告。

中国农业大学的彭彦昆教授，在中国农业产品质量安全的迅速检测方面，做了深入研究，取得了可喜成果，并引起报告现场国际同仁的浓厚兴趣，共同在这一方面进行了广泛探讨。

农业部南京农业机械化研究所，近年来也十分重视此会议。薛新宇代表整个南京所，对农业、生物及食品工程这一领域在中国实际发展情况，做了详细的介绍，并在微同步泵应用于农业喷洒及对家禽集成控制系统发展等方面进行了具体阐述，充分体现了先进科学技术对于基层实际应用的重要意义。

西北农林科技大学机械与电子工程学院院长何东健，对杨凌农业机械化发展做了详细的介绍，在场参会人员十分感兴趣，共同探讨咨询了很多方面的问题。

王应宽老师由于工作原因，没有亲临会议现场，但委托潘忠礼教授做了“China's Greater Role in ABE Communication and Journal Publishing: CIGR, IJABE and AAAE”的报告。

吴才聪老师，做了题为“GPS Based Information Collection Technology for Agriculture Mobile Management”的报告。

刘燕德老师对于光电一体化技术在华东交通大学的应用做了介绍。



现代农业航空施药技术国际学术交流会取得圆满成功

—AOCABFE为中国农业工程发展发挥积极作用

薛新宇 农业部南京农业机械化研究所植保与环境工程中心主任、研究员

由中国农业部南京农业机械化研究所、中国农业部农业机械重点开放实验室主办，海外华人农业、生物与食品工程师协会（AOCABFE）协办的“现代农业航空施药技术国际学术交流会”于2010年7月7日~8日在中国南京隆重召开，应邀出席会议的有来自美国农业部农业和生物工程中心乔治亚州大学应用静电实验室主任、美国工程院院士S. Edward Law、美国农业部南方研究中心研究员. 德克萨斯A&M 大学生物和农业工程系兼职教授兰玉彬博士、Brad Fritz博士，日本国冈山大学名誉教授毛利建太郎和日本国府立大学平井宏昭讲师、中国农业部南京农业机械化研究所植保与环境工程技术中心主任研究员薛新宇研究员、中国南京模拟技术研究所所长张逊研究员，中国农业科学院植物保护研究所郑传临研究员、袁会珠研究员等国内外专家学者，参加会议的有国内相关行业从事科研、教学、生产、应用和管理等部门的专家、学者及在校大学生、研究生等130多人。

会议本着“加强国内外在植保机械、农用航空、施药技术等领域广泛交流与合作，促进我国农业病虫害防治施药技术创新和应用发展”的宗旨，国内外专家学者分别结合各自国情，图文并茂、深入浅出地阐述了植保机械新技术、航空喷药技术、静电喷雾技术等领域的科研现状、应用效果、发展前景等方面的精彩内容。

农业部南京农业机械化研究所（以下简称南机所）植保与环境工程技术中心薛新宇研究员首先作了南机所植保机械研究发展历程专题报告，对南机所植保机械研究历史作了回顾，并对目前在研情况和研究发展进行了阐述，随着与先进国家在该领域的学习、交流往来增多，南机所在植保机械领域的研究思路、设计水平也得到了很好拓展与创新，充分表明了南机所在国内植保机械工程技术领域的重要地位和影响力。

张逊研究员作了轻型无人机在农业上发展与应用专题报告，着重介绍了通过对轻型无人直升机农业超低空施药适用性改制；对低空作业参数稳定性指挥控制技术的改进，通过田间试验证明了中国发展轻型无人直升机进行农业植保的可行性。

兰玉彬博士作了UAV控制技术和航空遥感技术在植保的应用专题报告，介绍了以“3S”技术为基础，利用遥感图像光谱分析，对作物的生长阶段、病虫害以及缺水、缺肥情况进行判断和预测，做到实时掌握、实时防治。报告中，体现了大量的基础性研究内容和实验结果，阐明了很多重要的实用性结论。

S. Edward Law院士作了美国静电施药技术的研究与应用专题报告，重点介绍了静电施药技术在美国的研究进展，阐述了如何做到施药中静电保留、静电传递及防止静电中和等问题，更好地提高静电施药技术，报告中展现了大量试验数据资料，值得借鉴。

Brad Fritz博士作了美国航空静电施药技术及施药防飘移控制技术专题报告，其中以“AGDISP”模型为对象，介绍了航空施药中，雾滴、风场等对农药飘移的影响，并给出了相应的对策；创造性地提出了如何消除航空静电施药中飞机自身的电荷积累方法，如：用带电液泡撞击机体达到中和电荷等。

日本的毛利建太郎教授、平井宏昭教授分别作了日本航空施药技术、静电施药技术专题报告，两位专家介绍了日本国土地以中小面积的坡田或梯田为主的特点，大力发展轻型无人机用于农作物病虫害防治的途径和经验。



与会代表各专题报告内容充实、实用性强，与会代表受益非浅，不仅对国外航空施药技术等的发展研究有了进一步的认识，同时对有选择性地借鉴国外先进理念、先进技术融入到自身的研究领域拓宽了思路。

本次会议得到了AOCABFE的大力支持，AOCABFE作为一个独立的、非政治性的、非营利性的学术团体，着力推动中国与国际间的学术交流与合作，对中国的农业工程的发展发挥了积极的促进作用。

Professional Opportunities

AGRICULTURAL ENGINEERING FACULTY POSITION UNIVERSITY OF CALIFORNIA, DAVIS

Mechanization Engineer, Assistant Professor (9-month tenure track, 11-month term of employment). The candidate will address mechanization and automation of specialty crop production in California, including fruits, vegetables, nuts, flowers, and ornamental plants. The focus will be on design, development, and testing of mechanical actuators, sensors and control systems for optimal management of inputs and products. The candidate will assist with lower and upper division undergraduate teaching in engineering and technology, and develop graduate level course work in their research area. Candidates must have a strong documented engineering background with a PhD in engineering or a BS in engineering with a PhD in a scientific field. They must have the ability to conduct both independent and cooperative research, and the ability to teach engineering courses to undergraduate and graduate students, with special reference to equipment design. For more information and to apply, go to <https://recruitments.ucdavis.edu/>. Please feel free to contact Dr. David Slaughter, Search Committee Chair, Department of Biological and Agricultural Engineering, University of California, Davis, CA 95616-5294. Tel: (530)752-5553. Fax: (530)752-2640. E-mail: dcslaughter@ucdavis.edu. Open until filled, but to assure consideration, applications must be received by December 1, 2010.