

# Programs of *Plant Genomics in China XXIII*

August 19 - 22, 2024, Haikou, Hainan

## August 19, 2024

**10:30 - 21:00** Arrival and Registration

**18:00 - 20:00** Dinner

## August 20, 2024

**08:30 - 09:00** Opening Ceremony

**Chair:** Prof. Weicai Yang, Executive Chair of PGC Committee

Remarks from Prof. Qifa Zhang, Chair of PGC Committee

Remarks from Prof. Jianghui Xie, Vice-President, Chinese Academy of Tropical Agricultural Sciences

**09:00 - 10:00** Session I: Emerging Frontiers

**Chair:** Weicai Yang

**09:00 - 09:30** Plenary 1 Wen Wang (Northwestern Polytechnical University)  
Deciphering animal complex traits by evolutionary genomics

**09:30 - 10:00** Plenary 2 Qiangfeng Zhang (Tsinghua University) AI approaches to  
single-cell genomics

**10:00 - 10:15** Tea Break

**10:15 - 12:00** Session II: Multi- Omics (I)

**Chair:** Jisen Zhang

**10:15 - 10:45** Plenary 3 Bob Schmitz (University of Georgia) Deciphering  
cis-regulatory elements at single-cell resolution in plants

**10:45 - 11:45** Major Talk

- 10:45 - 11:05 **Xuehui Huang** (Shanghai Normal University) The development of an intelligent breeding system in rice
- 11:05 - 11:25 **Jinsheng Lai** (China Agricultural University) The complete telomere-to-telomere genome assembly of maize and beyond
- 11:25 - 11:45 **Han Cheng** (Rubber Research Institute, Chinese Academy of Tropical Agricultural Sciences) Haplotype-resolved genome helps deciphering yield component traits in rubber tree
- 11:45 - 12:00 Student Talk**
- 11:45 - 12:00 **Tao Zhu** (Nanjing University) Comprehensive mapping and modelling of the rice regulome landscape unveils the regulatory architecture underlying complex traits

**12:00 Lunch Break**

**14:00 - 16:05 Session III: Functional Genomics (I)**

**Chair: Shuhua Yang**

- 14:00 - 14:30 **Plenary 4 Dai-Yin Chao** (CAS Center for Excellence in Molecular Plant Sciences) A GAPLESS Casparian strip for plant homeostasis
- 14:30 - 15:50 **Major Talk**
- 14:30 - 14:50 **Wen-Xue Li** (Institute of Crop Sciences, CAAS) Biofortification of iron content by regulating a NAC transcription factor in maize
- 14:50 - 15:10 **Fei Zhang** (Huazhong Agricultural University) A molecular pathway for the development of Citrus oil gland
- 15:10 - 15:30 **Xu Chen** (Fujian A&F University) Auxin regulation on soybean nodulation: from mechanisms to opportunities in breeding
- 15:30 - 15:50 **Feng Tian** (China Agricultural University) Maize smart-canopy architecture enhances yield at high densities
- 15:50 - 16:05 Student Talk**
- 15:50 - 16:05 **Xing Huang** (CAS Center for Excellence in Molecular Plant Sciences) Maize DDK1 encoding an Importin-4  $\beta$  protein is essential for seed development and grain filling by mediating nuclear exporting of eIF1A

**16:05 - 16:20**    **Tea Break**

**16:20 - 18:10**    **Session IV: Epigenetics and Epigenomics**

**Chair: Yidan Ouyang**

16:20 - 16:50    **Plenary 5 Yijun Qi** (Tsinghua University) RNA regulation in plants

**16:50 - 18:10**    **Major Talk**

16:50 - 17:10    **Jun Xiao** (Institute of Genetics and Developmental Biology, CAS)  
Systemic identification of yield regulators via integration of multi-omics  
in wheat

17:10 - 17:30    **Xian-Jun Song** (Institute of Botany, CAS) The genetic basis of histone  
acetylation-centered regulation of grain size in rice

17:30 - 17:50    **Yijing Zhang** (Fudan University) Harmony in diversity: functional  
epigenomic study of wheat polyploidy

17:50 - 18:10    **Xingwang Li** (Huazhong Agricultural University) Simultaneous profiling  
of chromatin-associated RNA at targeted DNA loci and RNA-RNA  
interactions through TaDRIM-seq

**18:10**    **Dinner**

**20:00 - 21:00**    **PGC Committee Meeting**

**August 21, 2024**

**08:30 - 12:00**    **Session V: Multi- Omics (II)**

**Chair: Pengcheng Wang**

08:30 - 09:00    **Plenary 6 Junbiao Dai** (Agricultural Genomics Institute at Shenzhen,  
CAAS) SynMoss: Design and synthesize a plant genome

**09:00 - 10:00**    **Major Talk**

09:00 - 09:20    **Jiancai Li** (CAS Center for Excellence in Molecular Plant Sciences) The  
retrograde evolutionary assembly safely switches a terpenoid pathway  
from indirect to direct defense

09:20 - 09:40    **Jie Luo** (Hainan University/Yazhouwan National Laboratory)  
Identification and regulation of metabolic gene clusters in plants

09:40 - 10:00 **Xuna Wu** (Yunnan University) Transceptor NRT1.1 and receptor-kinase QSK1 complex controls PM H<sup>+</sup>-ATPase activity under low nitrate

**10:00 - 10:15 Student Talk**

10:00 - 10:15 **Tian Sang** (Southern University of Science and Technology) Highly sensitive site-specific SUMOylation proteomics in Arabidopsis

**10:15 - 10:30 Tea Break**

**Chair: Zhixi Tian**

10:30 - 11:00 **Plenary 7 Yang Bai** ((Institute of Genetics and Developmental Biology, CAS/Peking University) Interactions between root microbiome and crops

**11:00 - 12:00 Major Talk**

11:00 - 11:20 **Guoyong Xu** (Wuhan University) Precise annotation of RNA regulatory elements and their application in crop defense engineering

11:20 - 11:40 **Chunming Wang** (Nanjing Agricultural University) Progress report on nitrogen use efficiency and salt tolerance in rice

11:40 - 12:00 **Chaorong Tang** (Hainan University) Pan-genome and phylogenomic analyses highlight *Hevea* species delineation and rubber trait evolution

**12:00 Lunch Break**

**14:00 - 15:55 Session VI: Genome Diversity**

**Chair: Hongzhi Kong**

**14:00 - 15:40 Major Talk**

14:00 - 14:20 **Fei Lu** (Institute of Genetics and Developmental Biology, CAS) A high-resolution map of evolutionary constraint in bread wheat using Triticeae genomes

14:20 - 14:40 **Liangsheng Zhang** (Zhejiang University) The Angiosperm genomes and its gene resources mining

14:40 - 15:00 **Ning Yang** (Huazhong Agricultural University) The population genetic studies of *Zea* genus

15:00 - 15:20 **Jianquan Liu** (Lanzhou University) Genomic structural variations and environmental adaptations

15:20 - 15:40 **Zhoulin Gu** (National Center for Gene Research, CAS) Genetic improvements during rice hybrid breeding and its implications for design breeding

**15:40 - 15:55 Student Talk**

15:40 - 15:55 **Kunpeng Li** (Institute of Botany, CAS) Identification of errors in draft genome assemblies at single-nucleotide resolution for quality assessment and improvement

**15:55 - 16:10 Tea Break**

**16:10 - 18:00 Poster Session and Journal Workshop (concurrent sessions)**

**16:10 - 18:00 Journal Workshop**

Sponsored by Springer & Molecular Breeding

**Chair: Xiaofeng Cui**

16:10 - 16:20 **William Teale** (EMBO Journal) Open Science in the era of Open Access

16:20 - 16:30 **Rong Chen** (Molecular Plant) Publishing with Molecular Plant/Plant Communications and Beyond

16:30 - 16:40 **Wenjing She** (Genome Biology) Publishing with Genome Biology

16:40 - 16:50 **Jing Zhao** (Journal of Genetics and Genomics) Journal of Genetics and Genomic Supports Plant Biology Research

16:50 - 17:00 **Kanyin Feng** (Springer Nature) Fostering Plant Science: Springer Nature's Commitment to Being a Trusted Partner

17:00 - 17:10 **Sanwen Huang** (aBiotech) aBIOTECH—A new venue to contribute agriculture science community

17:10 - 17:20 **Liyu Chen** (Seed Biology) Seed Biology: Boost Seed Innovation Research

17:20 - 18:00 **Open Discussion: QA with the Editors**

**18:00 Dinner**

**August 22, 2024**

**08:30 - 11:50 Session VII: Functional Genomics (II)**

**Chair: Yongrui Wu**

08:30 - 09:00 **Plenary 8 Vivianne GAA Vleeshouwers** (Wageningen University & Research) Functional diversification of the potato immune receptor PERU at its center of origin

**09:00 - 10:00 Major Talk**

09:00 - 09:20 **Sijia Lu** (Guangzhou University) Subfunctionalization and self-repression of duplicated homologues fine tune soybean flowering and adaptation

09:20 - 09:40 **Hong-Ju Li** (Institute of Genetics and Developmental Biology, CAS) The molecular regulation and evolution of plant fertilization

09:40 - 10:00 **Peng Zhang** (CAS Center for Excellence in Molecular Plant Sciences) Structure guided engineering of guard cell channels/transporters to boost photosynthesis

**10:00 - 10:15 Student Talk**

10:00 - 10:15 **Yang Liu** (Institute of Genetics and Developmental Biology, CAS) Overriding Mendelian inheritance in Arabidopsis with a CRISPR toxin–antidote gene drive that impairs pollen germination

**10:15 - 10:30 Tea Break**

**Chair: Fanjiang Kong**

**10:30 - 11:50 Major Talk**

10:30 - 10:50 **Jia-Wei Wang** (CAS Center for Excellence in Molecular Plant Sciences) Reciprocal conversion between annual and polycarpic perennial flowering behavior in the Brassicaceae

10:50 - 11:10 **Shuang Wu** (Fujian Agriculture and Forestry University) Trichome regulation in tomato and its potential application in breeding

11:10 - 11:30 **Jing Wang** (Sichuan Agricultural University) E3 ligases contribute to the balance between rice immunity and growth via different pathways

11:30 - 11:50 **Mingliang Xu** (China Agricultural University) A calcium-dependent protein kinase mediates quantitative resistance to multiple foliar diseases

in maize

**12:00 Lunch Break**

**14:00 - 15:30 Session VIII: Genome Breeding**

**Chair: Peng Qin**

14:00 - 14:30 **Plenary 9 Sanwen Huang** (Chinese Academy of Tropical Agricultural Sciences) The reinvention of potato and the PLANeT initiative

**14:30 - 15:30 Major Talk**

14:30 - 14:50 **Zhongfu Ni** (China Agricultural University) Dissection of the molecular basis underlining spike morphology in wheat species (*Triticum L.*)

14:50 - 15:10 **Shifeng Cheng** (Agricultural Genomics Institute at Shenzhen, CAAS) Understanding and harnessing traits for breeding

15:10 - 15:30 **Tianzhen Zhang** (Zhejiang University) Breeding by design strategy in cotton in China

**15:30 Closing Ceremony**

**Chair:** Prof Sanwen Huang, Chinese Academy of Tropical Agricultural Sciences

Presentation of the awards for the best posters (Sponsored by The EMBO Journal and The EMBO Reports)

Presentation of the awards for the best student talks

Closing Remarks: Prof. Weicai Yang, Executive Chair of PGC Committee

Messages from the local organizers of PGC XXIV

**18:00 Dinner**

Programs may be subjected to changes