

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. Sanwen Huang, 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

Chair: Yidan Ouyang

15:10 - 15:30 **Hongning Tong** (Institute of Crop Sciences, CAAS) Unleashing rice yield by trade-off dismantling via tissue-specific brassinosteroid inhibition

15:30 - 15:50 **Sijia Lu** (Guangzhou University) Subfunctionalization and self-repression of duplicated homologues finetunes soybean flowering and adaptation

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 β 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: Jixian Zhai

- 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⁺-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 Jianbin Yan** (Agricultural Genomics Institute at Shenzhen, CAAS) Taxus genome and paclitaxel biosynthesis pathway

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 **Xiaofeng Gu** (Biotechnology Research Institute, CAAS) A multi-omics integrative network in response to stresses in rice

11:40 - 12:00 **Chorong Tang** (Hainan University/Rubber Research Institute, Chinese Academy of Tropical Agricultural Sciences) 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: Jianquan Liu

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

Chair: Hongzhi Kong

15:00 - 15:20 **Yang Dong** (Yunnan Agriculture University) Wild ginger genome enables identification of region determining sex-phase synchrony

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 Journal Workshop and Poster Session

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 **Feng Tian** (China Agricultural University) Maize smart-canopy architecture enhances yield at high densities

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 behaviour 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 **Kenichi Tsuda** (Huazhong Agricultural University) Dual multi-omics dissection of plant-bacterial interactions
- 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 and 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.