

Summary of 10th US-PRC Fusion Collaboration Virtual Workshop, March 22-26, 2021

Houyang Guo, Xuru Duan



<https://pls.llnl.gov/resources/events/MFCW>

Acknowledgements

MANY THANKS
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in particular,

**Lara Ahuna, Irene Anderson,
Xueqiao Xu, Harry Mclean,
Alex Friedman, Ben Zhu,
Bill Meyer, Casey Howard**

**for making this workshop a great
success!**

All of You

**for your participation and
contributions!**



Acknowledgements

**MANY THANKS
to 10th MFCW Program Committee**

China: Xuru Duan, Guoyong Fu, Chuanhong Pan,
Baonian Wan, Xiaogang Wang, Ge Zhuang

US: Paul Bonoli, Kenneth Gentle, Houyang Guo,
Rajesh Maingi, George Tynan, Ezekial Unterberg,
Xueqiao Xu

**for time and efforts
in planning and organizing this workshop**

US-PRC Fusion Collaborations Involve a Broad Range of Scientists, Institutions and Activities: 2017, 2018

US to PRC

102 active collaboration projects

PRC to US

Exchange	Topic	Type	To	From	Person	Weeks	US Key Person	OFES Contact	PRC Key Person	Notes
A. Plasma Physics										
US > PRC										
A-1.1	Upgrade in-vessel hot calibration source	Participation	ASIPP	IFS (TX)	2	3	He Huang huanghe@austin.uteexas.edu W.L. Rowan w.l.rowan@austin.utexas.edu	J. Mandrekas	Yong Liu liuyong@ipp.ac.cn Ti Ang angt@ipp.ac.cn	Upgrade the hot calibration source with a more robust and reliable unit that can be used any time that EAST is not actually in operation.
A-1.2	Support CECE development	Participation	ASIPP	IFS (TX)	1	2	He Huang huanghe@austin.uteexas.edu W.L. Rowan w.l.rowan@austin.utexas.edu	J. Mandrekas	Yong Liu liuyong@ipp.ac.cn	Verify the quasioptical design for the CECE
A-1.3	ECE upgrade and CECE development	Participation	ASIPP	IFS (TX)	3	3	He Huang huanghe@austin.uteexas.edu W.L. Rowan w.l.rowan@austin.utexas.edu	J. Mandrekas	Yong Liu liuyong@ipp.ac.cn	

Exchange	Topic	Type	To	From	Person	Weeks	US Key Person	OFES Contact	PRC Key Person	Notes
PRC > US										
A-15.1	Gyrokinetic simulation of tokamak turbulence and MHD waves	Participation	Center for Integrated Plasma Studies (CIPS), University of Colorado	ASIPP	3	8	Yang Chen Yang.chen@colorado.edu	J. Mandrekas	Lei Ye lye@ipp.ac.cn Youjun Hu yjhu@ipp.ac.cn Guozhang Jia gzjia@ipp.ac.cn	Collaboration on the development and application of the GEM code in the following subjects: Gyrokinetic simulation of electromagnetic turbulence and transport in tokamaks hybrid simulation of MHD waves and energetic particles interaction
12	Lang Lao lao@fusion.gat.com Orso Meneghini meneghini@fusion.gat.com Jeff Candy candy@fusion.gat.com							J. Mandrekas	Wenfeng Guo wfguo@ipp.ac.cn Chengkang Pan ckpan@ipp.ac.cn Jiale Chen chen@ipp.ac.cn	CFETR steady-state scenario development CFETR ramp-up simulation

Approval of 2017 – 2018 U.S.-PRC Fusion Cooperation Program

James W. Van Dam

Dr. James W. Van Dam
U.S. Program Coordinator
for U.S./PRC Fusion Collaboration

Ye Yujiang

Dr. Yujiang YE
Director-General
Department of Basic Research
P.R.C. Ministry of Science and Technology

Date: 12 July 2017

US-PRC Fusion Collaborations Involve a Broad Range of Scientists, Institutions and Activities: 2019, 2020

US to PRC

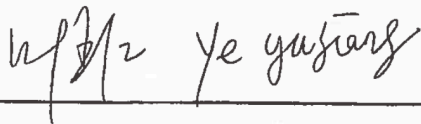
156
collaboration
projects

PRC to US

Exchange	Topic	Type	To	From	Person	Weeks	US Key Person	OFES Contact	PRC Key Person	Notes
A. Plasma Physics										
US > PRC										
A-1.1	Collaborative development and application of the GeFi simulation models	Participation	ASIPP (Hefei)	Auburn University	2	4	Yu Lin linyu01@auburn.edu Xueyi Wang wangxue@auburn.edu	John Mandrekas John.Mandrekas@science.doe.gov	Nong Xiang xiangn@ipp.ac.cn	Apply the gyrokinetic electron and fully kinetic ion (GeFi) particle
A-1.2	3D simulation of lower hybrid current drive	Participation	ASIPP	Auburn University	4	4	Xueyi Wang wangxue@auburn.edu Yu Lin ylin@physics.mn.edu			

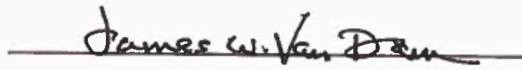
Exchange	Topic	Type	To	From	Person	Weeks	US Key Person	OFES Contact	PRC Key Person	Notes
PRC>US										
A-17.1	CFETR physics design	Participation	GA	ASIPP	3	12	LangLao lao@fusion.gat.com OrsoMeneghinimene ghini@fusion.gat.com Jeff Candy candy@fusion.gat.com	Matthew Lancotot	Wenfeng Guo wfguo@ipp.ac.cn Chengkang Pan ckpan@ipp.ac.cn Jiale Chen chen@ipp.ac.cn Qilong Ren renql@ipp.ac.cn	CFETR steady-state scenario development CFETR ramp-up simulation CFETR Scenario development
							David Humphreys humphreys@fusion.gat.com	Matthew Lancotot	bjxiao@ipp.ac.cn	PCS infrastructures and algorithm integration; Plasma controllabilities; Event handling and fault protection
							David Schissel schissel@fusion.gat.com	Matthew Lancotot	bjxiao@ipp.ac.cn	Massive Data transfer between DIII-D and EAST, fusion meta data and data visualization, and remote participation

Approval of 2019-2020 U.S. – PRC Fusion Collaboration Program



Dr. Yujiang Ye
Director-General
Department of Basic Research
P.R.C. Ministry of Science and Technology

Date:



Dr. James W. Van Dam
~~Acting~~ Associate Director of the Office of Science
For Fusion Energy Science
U.S. Department of Energy

Date: June 7, 2019

This Workshop Highlighted Major Progress on Collaborations in 2019 and 2020

➤ Registered Participants: 115

- PRC: 57
- US: 58

➤ Presentations: 48

- Major facilities overview (5)
- Major collaborations (4)
- New Devices (3)
- Boundary & PMI (4)
- Diagnostics & technology development (3)
- Theory & simulations (4)
- Short presentations (converted from posters & accommodated new requests for latest development in 2021, 25)

New Opportunities and Recommendations for Improving Future Collaborations

- **Emergent opportunities from Community/FESAC long-range strategic planning in the US**
- **Opportunities for collaborations on new devices in China**
 - CFETR, HL-2M, EXL
- **How to maintain productive collaboration in Pandemic**
 - Need for travel support for collaborations
 - *Resume travel to China for installation of diagnostics and participation in experiments*
 - Setup routine for virtual meetings for research communities
- **How to facilitate burdensome shipping, equipment loans, customs requirements**
-

Collaboration Proposals for 2020 and 2021

- **Received Proposals for 2020 and 2021 – Thank you!**
- **Now, finalizing the list of proposed collaborations**
- **Plan to submit the list of proposed programs to US DOE & China MOST for approval after this workshop.**

Next Workshop

➤ **Candidate Hosts:**

- **DUT (Dalian)**
- **HUST (Wuhan)**

➤ **Time:**

- **toward end of 2021?**

➤ **Duration:**

- **2.5 days?**
Or extending to 3-4 days?