

Experience with collaborations in China

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KET Strategy workshop at DESY
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Collaborating with China

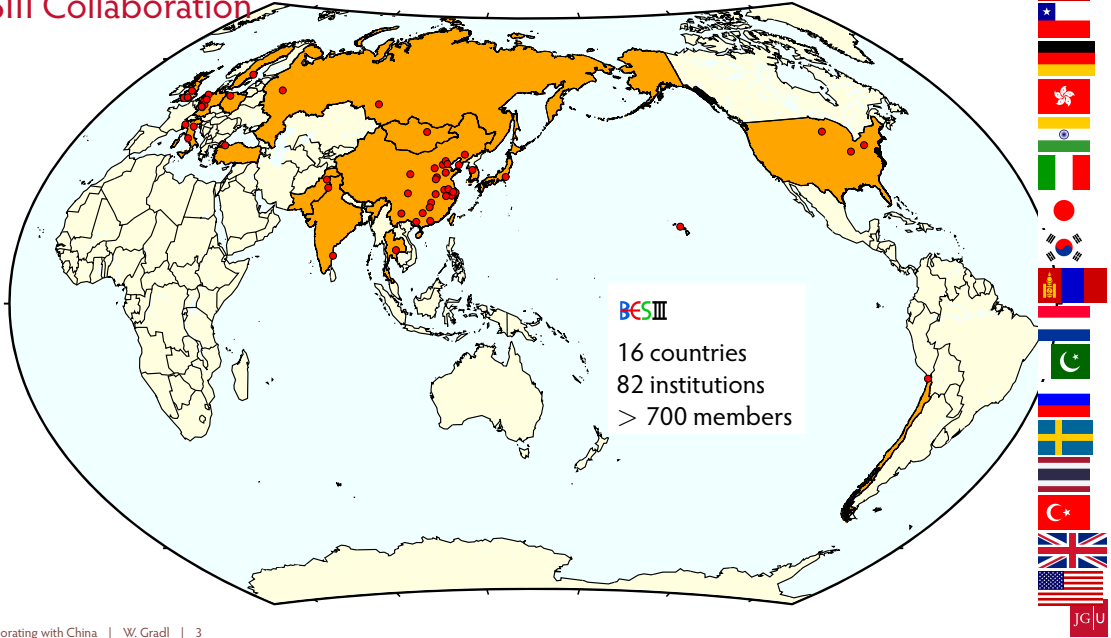
Aspects and challenges of doing experimental particle physics in China

- practical
- administrative
- political

My experience:
member of BESIII since 2011, co-spokesperson since 2013
frequent travel to the experiment and regular meetings

Also input from Italian colleagues and Mainz JUNO group leader

BESIII Collaboration



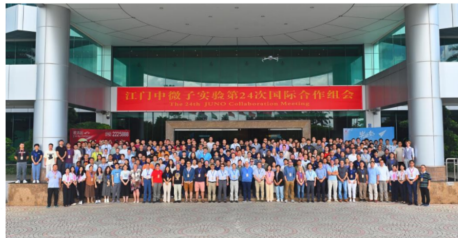


JUNO collaboration

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- Collaboration established in 2014
- now more than 700 collaborators from 74 institutions in 17 countries/regions

Country	Institute	Country	Institute	Country	Institute
Armenia	Yerevan Physics Institute	China	Tsinghua U.	Germany	U. Tuebingen
Belgium	Universite libre de Bruxelles	China	UCAS	Italy	INFN Catania
Brazil	PUC	China	USTC	Italy	INFN di Frascati
Brazil	UEL	China	U. of South China	Italy	INFN-Ferrara
Chile	SAPHIR	China	Wu Yi U.	Italy	INFN-Milano
Chile	UNAB	China	Wuhan U.	Italy	INFN-Milano Bicocca
China	BISEE	China	Xi'an JT U.	Italy	INFN-Padova
China	Beijing Normal U.	China	Xiamen University	Italy	INFN-Perugia
China	CAGS	China	Zhengzhou U.	Italy	INFN-Roma 3
China	ChongQing University	China	NUDT	Pakistan	PINSTECH (PAEC)
China	CIAE	China	CUG-Beijing	Russia	INR Moscow
China	DGUT	China	ECUT-Nanchang City	Russia	JINR
China	Guangxi U.	China	CDUT-Chengdu	Russia	MSU
China	Harbin Institute of Technology	Czech	Charles U.	Slovakia	FMPIU
China	IHEP	Finland	University of Jyväskylä	Taiwan-China	National Chiao-Tung U.
China	Jilin U.	France	IJCLab Orsay	Taiwan-China	National Taiwan U.
China	Jinan U.	France	LP2i Bordeaux	Taiwan-China	National United U.
China	Nanjing U.	France	CPPM Marseille	Thailand	NARIT
China	Nankai U.	France	IPHC Strasbourg	Thailand	PPRLCU
China	NCEPU	France	Subatech Nantes	Thailand	SUT
China	Pekin U.	Germany	RWTH Aachen U.	U.K.	U. Liverpool
China	Shandong U.	Germany	TUM	U.K.	U. Warwick
China	Shanghai JT U.	Germany	U. Hamburg	USA	UMD-G
China	IGG-Beijing	Germany	GSI	USA	UC Irvine
China	SYSU	Germany	U. Mainz		



the 24th JUNO collaboration
meeting + physics analysis
workshop, June 29- July 5, 2024
~240 participants

BESIII vs. JUNO

- Detector construction: essentially all Chinese
- **new 2024:** replace inner drift chamber by cylindrical GEM detector (Italy, Germany, Sweden, IHEP)
- no common fund payable for foreign institutions
- Detector: $\approx 85\%$ China, rest from outside
- PMTs, OPERA's muon veto and target tracker
- critical component: **radio purity measurement** of liquid scintillator Italy and Germany (MZ)
- common fund: EUR 5000 per PhD physicist and year unproblematic so far

Expect CEPC and its experiment(s) to follow the JUNO model

Both collaborations: non-Chinese contributions are very welcome and well received

During COVID pandemic: no travel from outside China possible
Chinese colleagues really helped out with exceptional involvement

Structure of BESIII

- about 80 collaborating institutions, 28 non-Chinese inst.
- 703 names on current author list, 83 non-Chinese (was ≈ 130 in 2019)
- Clearly quite dominated by Chinese groups
- Many small-ish groups led by newly-appointed group leaders (former BESIII postdocs, many with a few years experience outside China) at universities that want to establish a particle physics department

Structure of BESIII

- Nevertheless non-Chinese collaborators well represented in collaboration management:
Co-spokesperson (spokesperson from IHEP, 1 co-spokesperson from China, 1 from non-Chinese inst.)
Exec board
Working group conveners
Speakers' bureau,
publications committee
- In formal votes, non-Chinese clearly would be outvoted every time
Usually can find a way to convince colleagues and find consensus ...
sometimes needs patience and tenacity, and always lots of discussion

Doing particle physics in China: BESIII perspective

BESIII collaboration: large part of collaborators are postgraduate students
(... who need at least one published paper to graduate)

Most of our publications are based on their work:
great productivity, and many excellent results

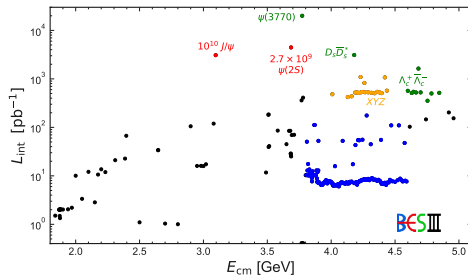
but sometimes 'interesting' side effects:

- e.g. pressure to publish by a certain date to facilitate graduation
- cultural differences
... but then, there are also cultural differences when collaborating with Italians or colleagues from UK and US ...

Doing particle physics in China: BESIII perspective

Scientific return on investment

- Whole collaboration owns the data (and software) — no question that access would be restricted
- No (political, admin) issues with exporting data
can and do regularly copy new datasets to Mainz for local analysis
bottleneck: limited storage space at home
- Setting the programme:
BESIII runs on many, many different energy settings
data taking plan is agreed upon by the collaboration
sometimes intense debate
compromises necessary, but everyone gets their data



Doing particle physics in China: administrative issues

- For all administrative tasks, IHEP staff has been exceptionally helpful
 - ▶ Opening bank accounts
 - ▶ Renting apartments for long-term stays
 - ▶ Dealing with authorities
- Getting equipment through customs (e.g. BESIII CGEM)

Arrival at IHEP



25/11/18

CGEM status report



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- Getting equipment through customs (e.g. BESIII CGEM)
- Sometimes you just hit a brick wall:
no entry during the pandemic, even for those with Chinese contracts

Administrative issues: Formal collaboration

- **Italy / INFN** and **IHEP** have established a formal framework:
IHEP-INFN Joint Laboratory
with support from Chinese and Italian ministries
- to the best of my knowledge, no such structure currently exists for Germany
- DFG funded Sino-German TRR 110 (Bonn, Jülich, TUM, Peking University and IHEP)
- Two EU RISE projects successful for travel to China:
common application of European and Chinese institutes

Doing particle physics in China: travel, entry

- Since December 2023: visa free entry for some European nationals (expanding list includes Germany, Italy, ...) for business and tourism, max. stay 15 days programme currently announced to run through Dec. 2025
- For longer stays: need to apply for visa requires invitation letter from a host institute seems to be handled somewhat inconsistently, depending on country/embassy/consulate
- Travel to China: air travel needed (sustainability) FRA-PEK usually 8 – 9 hours, currently rather longer
- China is **large** — if no direct flight to city close to experiment or meeting, add 1/2 day or more for domestic travel
- However: high-speed train network has really grown in the last years very convenient and safe way to travel

Travel, entry, staying in China

My personal experience, after about a decade of travel to China:

- never had problems at the border
- never had any device (phone, computer) confiscated or searched (as far as I know, of course)
- never been detained, questioned, ...

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Conclusions:

- (1) Maybe I'm hopelessly naive
- (2) Particle physicists are no high-profile targets for such measures

Practicalities in day-to-day life

Technology really helps:

- Getting around a city: subway, buses
in large cities generally not a problem
having a map and a translation app on the smartphone really helps
- ride-hailing app (DiDi, 滴滴) can order ordinary taxis, avoids discussions and mis-understanding with drivers
- translation apps also help in hotels, restaurants, shops ...
- + some app to do electronic payments (WhatsApp, AliPay)

Speaking Chinese certainly helps, but is not absolutely necessary to get by, at least in larger cities

Practicalities in day-to-day life

However:

Great Chinese Firewall blocks access to almost all
'western' internet sites

Google, Wikipedia, news sites, social media ...
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VPN connections frequently disrupted
or blocked outright

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DER SPIEGEL



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- Funding and support from Chinese side may depend on political goodwill —
competition for finite resources from other branches of science

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- Geopolitical considerations ...

In summary

- China is different (but so is Japan)
 - but nevertheless offers unique and exciting environment
 - from a purely scientific view:
good place to do particle physics
 - ... statement above disregards political considerations
- ✓ ... would join again

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謝謝！