Nuclear Theory Working Group - 2017

Previous report and recommendations (MSU, 2015)

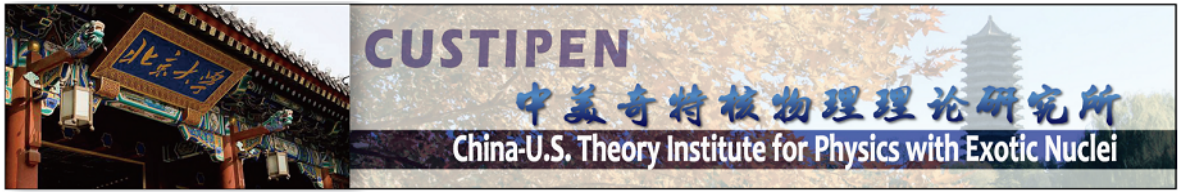
Fifteen participants, with several short presentations on potential areas of collaboration

Topics of discussion:

- Areas of physics collaboration
- Resources needed to carry out our joint research program
- **Structural recommendations**

南京大学
NANJING UNIVERSITY

SAN DIEGO STATE UNIVERSITY

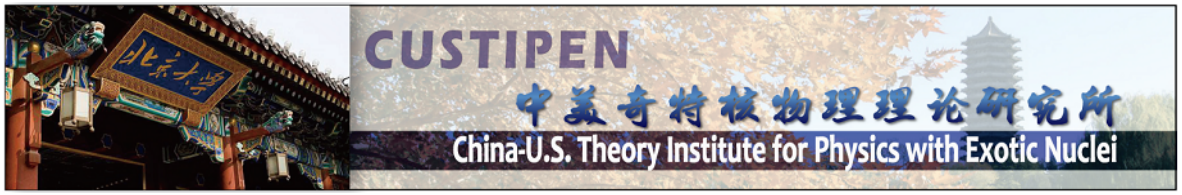


Previous report and recommendations (MSU, 2015)

It's not enough to list areas of potential collaboration between individual institutions—we are already doing that.

It is important to identify **structural pathways** to strengthen coherent physics programs and to improve access to resources, in particular **access to innovation in theory and computation.**

One key way to do this is through **postdoctoral training**.



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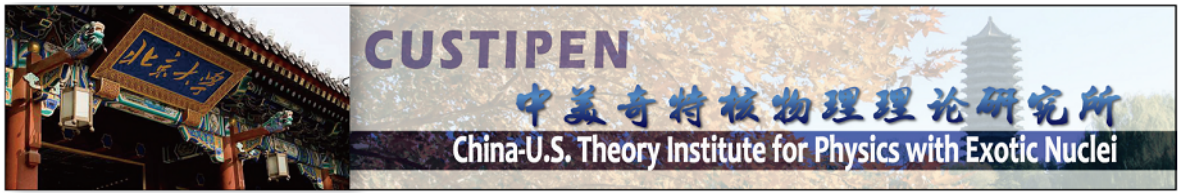
Structural recommendations (MSU, 2015)

- Strong endorsement of education program in the mode of nuclear TALENT

- Encourage the formation of a Chinese nuclear physics and/or nuclear theory coordinating committee, to help develop coherent research plans across many institutions. Those plans will be further discussed with the FRIB Theory Alliance and CUSTIPEN to form topical collaborations.

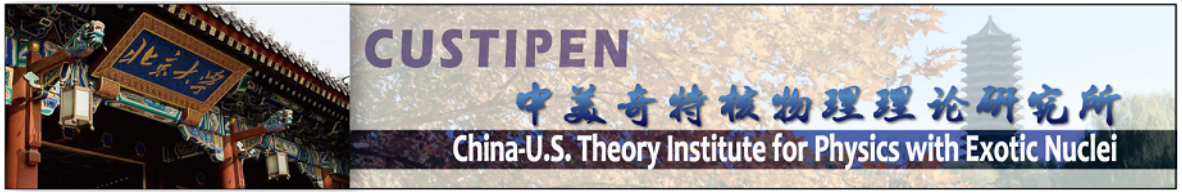
- Propose the establishment of a joint U.S.-China nuclear physics coordination committee, involving principal stakeholders including funding agencies.



Structural recommendations (MSU 2015), continued

- Support and encourage young people to apply for the Chinese government postdoctoral fellowship and suggest that the Chinese nuclear physics community identify excellent candidates to apply for the fellowships and be recommended to US institutions.

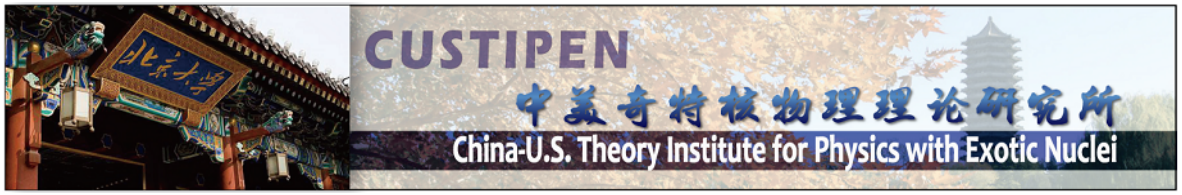
- In particular, we identified sending Chinese postdocs to the U.S., primarily supported by Chinese Government, for further training and access to innovation resources.



Report and recommendations Beijing 2017

Twenty participants, ten short research reports

Research reported included phenomenology, but focused on *ab initio* calculations with increased emphasis on open quantum systems (e.g., through Gamow-Berggren basis) as a path towards reactions



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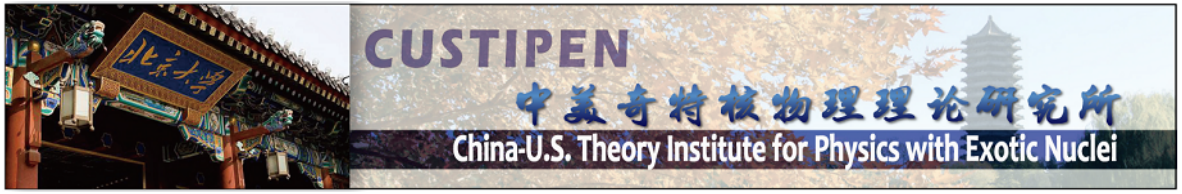
Report and recommendations 2017

Two broad recommendations

- **Build up theory infrastructure in China alongside experimental infrastructure**

- **Build up low-energy reaction theory, important for current and planned Chinese experimental program, in terms of capability, visibility, and status.**



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Report and recommendations 2017

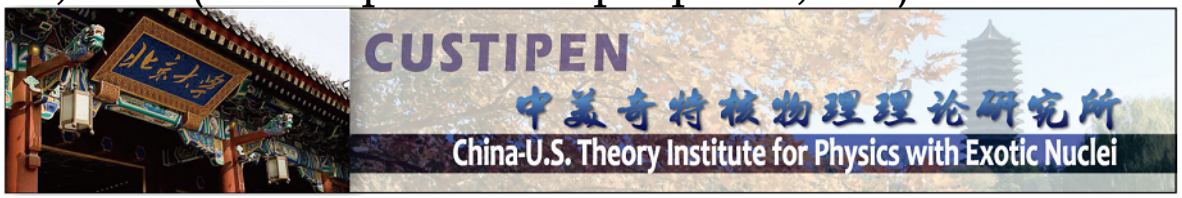
Specific recommendations under each broad recommendation

Build up theory infrastructure in China alongside experimental infrastructure

- Create national theory effort around HIAF (HIAF-TA)

This would be a natural partner for the US-based FRIB-TA.

- send US-based postdocs to China, keeping connections back in US, especially in topics with strong needs
- Encourage excellent nuclear theory students for apply for CSC graduate student funds to study in US.
- explore expanding CSC postdoc fellows from Chinese institutions besides PKU, IMP (will require new proposal, PI?)



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Build up low-energy reaction theory, important for current and planned Chinese experimental program, in terms of capability, visibility, and status.

- HIAF needs low-energy reaction theory for success.
- Hold conference(s) on intersection of structure and reaction theory, sponsored in part by labs such as IMP.
- Propose transnational topical collaborations on intersection of structure and reaction theory (funding source unclear)
- Run a TALENT course in China on reaction theory.