

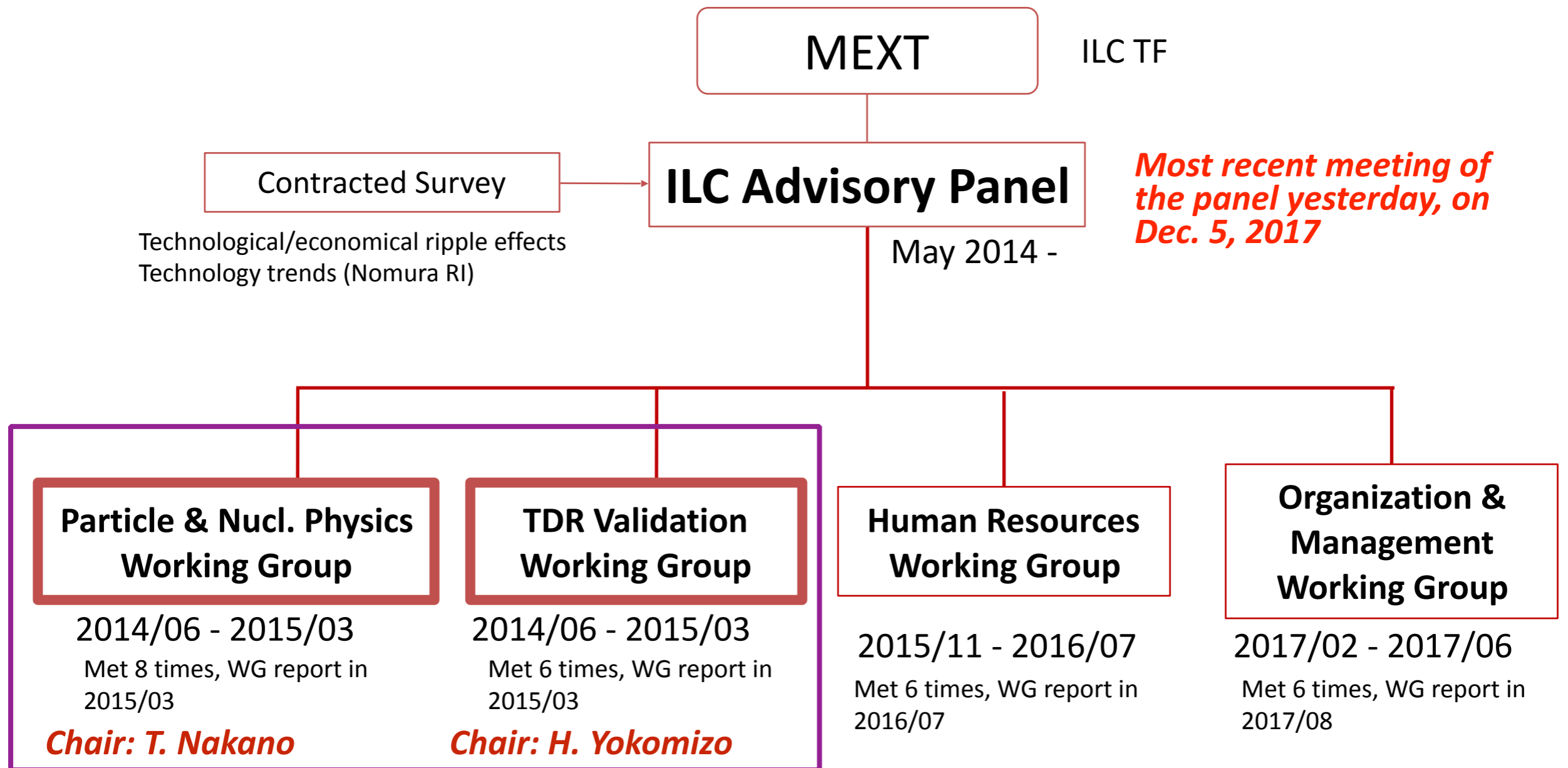


MEXT Review

Keisuke Fujii
May 23, 2018

ILC Advisory Panel

Set up in May 2014 under MEXT ILC Task Force to investigate various issues concerning the possibility of hosting the ILC in Japan



New round started from January 2018, each met 5 times and finished their mission

MEXT Particle and Nuclear Physics WG

Charge

Taking into account the recommendations made in the interim report by the MEXT ILC Panel, review the 250 GeV ILC physics case and clarify potential issues if any.

Members

1. **Takaaki Kajita (deputy chair) : Cosmic Ray Research**
2. **Sachio Komamiya : HEP**
3. **Hideyuki Sakai : Nuclear Physics**
4. **Seiji Tanabashi : HEP (theory)**
5. **Eiji Chin : Accelerator**
6. **Katsuo Tokushuku : HEP**
7. **Takeshi Nakano (chair) : Nuclear Physics**
8. **Tsuyoshi Nakaya : HEP**
9. **Tetsuo Hatsuta : Nuclear Physics (theory)**
10. **Ryugo Hayano : HEP**
11. **Shigeki Matsumoto : HEP (theory)**
12. **Taku Yamanaka : HEP**
13. **Hiromi Yokoyama : Scientific Communication**

1st meeting on Jan. 18

- **General remark from the secretariat (WG charge, history)**
- **Development of the LHC experiment: K. Hanagaki**
- **On the revision of the ILC project (Physics Case of the 250 GeV ILC): K. Fujii**
LCC Physics WG Report (arXiv: 1710.07621)

2nd meeting on Feb. 5

- **Discussions in JAHEP on ILC250: S. Asai**
Asai committee's report (arXiv: 1710.08639)
- **Physics potential of the ILC at 250 GeV: G. Weiglein**

3rd meeting on March 1: discussions on skeleton draft

- **Main points in the discussions so far**
- **Comparison of scientific case of 500 GeV ILC and 250 GeV ILC (Comparison Table)**

4th meeting on April 13:

- **About XFEL and FAIR mentioned in the LCB statement**
 - **XFEL: K. Tokushuku**
 - **FAIR: R. Hayano**
- **Discussions on 1st draft**

5th meeting on May 16: (the last meeting of the physics WG)

- **Answers from LCB about XFEL/FAIR (Why they are mentioned?)**
- **Discussions on 2nd (=updated) draft**
→ update left to chairman's discretion

Main conclusions of the report

Scenario from the point of view of scientific significance for 250 GeV ILC, based on the 13 TeV LHC results

Methods: BSM searches through precision Higgs measurements, searches for dark matter, extra dimensions, etc. with mainly indirect methods.

Outcome: If deviations from the SM are observed in the Higgs couplings, their sizes and deviation pattern will tell us the direction and the scale of the BSM physics.

If observed, dark matter particles and/or extra dimensions will greatly advance particle physics.

- 13 TeV LHC results suggest that the chance to discover new particles through direct searches is low. Precision top quark measurements cannot be done.***
- The scenario above should be justified not only from the scientific merits but also from the point of view of the project cost to be shown by the TDR validation WG.***

The 5th (the last) meeting of the TDR Validation WG happened on May 17.

The upper committee will meet next week during the Fukuoka WS.