



Introduction

Taikan Suehara (ICEPP, U. Tokyo)

on behalf of ILC-Japan physics working group

ILC-Japan

Spokesperson

Masaya Ishino (University of Tokyo)

Executive Board

Masaya Ishino (University of Tokyo) Shinichiro Michizono (KEK) Taikan Suehara (University of Tokyo)

Wataru Ootani (University of Tokyo) Osamu Jinnouchi (Tokyo Institute of Technology)

Nobuhiro Terunuma (KEK) Yutaka Ushiroda (KEK)

Shoji Asai * (KEK) Kazunori Hanagaki * (KEK) Naohito Saito * (KEK) Tadashi Koseki * (KEK)

Tsuyoshi Nakaya * (Kyoto University)

KEK: High Energy Accelerator Research Organization * ex-officio

International Accelerator R&D Working Group

Chair: Shinichiro Michizono (KEK)

Physics Working Group

Chair: Taikan Suehara (University of Tokyo)

Detector Working Group

Chair: Wataru Ootani (University of Tokyo)

Public Relations Task Force

Chair: Osamu Jinnouchi (Tokyo Institute of Technology)

ILC-Japan Physics working group

WG chairs

- Blue: CFP members
- T. Suehara (U. Tokyo, chair)
- J. Tian (U. Tokyo, co-chair)
- Core group members
 - S. Chen (Kyoto U., ATLAS/quantum)
 - S. Hirose (Tsukuba U., ATLAS)
 - Y. Horii (Nagoya U., ATLAS)
 - D. Jeans (KEK, ILC)
 - T. Kitahara (Chiba U., theory)
 - T. Masubuchi (Osaka U., ATLAS)
 - K. Nakamura (KEK, Belle II)
 - K. Tsumura (Kyushu U., theory)
 - M. Ishino (U. Tokyo, ex-officio)
- Contact core group members
 - If you are interested to join discussions
 - If you are interested in ILC-related physics studies
- Any contributions are highly welcome!

WG roles

- Leading physics studies related to ILC/Higgs factories
- Clarify physics motivations including upgrade paths
- Communicate these motivations with inside/outside our community
- Encourage wider contributions and pursue synergies with ongoing projects
- Communication with international community to increase visibility of activities in Japan

Current Activities

- A website including ILC physics summary
 - Draft is being prepared, first version will appear in this year?
- Communication with individual institutes/labs
 - Importance of discussions in small groups
 - · First visit to Osaka U. done in early October, several more planned
- Series of physics seminars (this activity)
 - Planned ~ once a two months (next: December?)
- ILC summer school in 2025 (under discussion)
- More to come...

Taikan Suehara, 1st seminar of ILC-Japan physics WG, 21 Oct. 2024, page 3

International situations / ongoing activities

Details discussed in CFP townhall meeting

- European strategy: call for input by March 2025, conclusion in mid 2026 for CERN's next projects with priority
- JAHEP input is being drafted in CFP (by end of this year)
- ECFA Higgs/Top/Electroweak factory studies: summarizing physics/software/detector activities for European strategy
- FCCee feasibility study will conclude in March 2025, continuing as pre-TDR phase (towards possible decision in ~2028)
- LCVision: unified view of all LC communities (ILC, CLIC, C³, ...)
 - Starting from SCRF (like ILC) then several upgrade paths
 - LC@CERN will also be proposed for European strategy
- ILC IDT: Cost update (since 2013/2017) is ongoing
- ITN: international cooperation on accelerator development taking shape

Target Energies of e+e- colliders

91~250 GeV

Oblique parameters, W/Z mass, b/τ rare decays

250 GeV

Higgs couplings (~1%), Higgs rare decay (light BSM) (TeV BSM indirect search)

350 GeV

Top mass → vacuum stability

500-550 GeV

Higgs self coupling (20-30%), ttH coupling

1 TeV

Higgs self coupling (10%) → baryogenesis

250 GeV - a few TeV

TeV BSM direct search

Natural SUSY (250 GeV - 1 TeV)

1 TeV Higgsino

3 TeV Wino

Today's agenda



Let's have fruitful discussions today!