

Underground Space use of ILC Project

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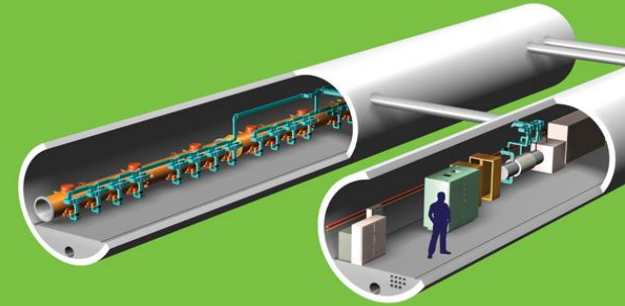
- Overview of ILC Underground Facilities
- How to create the Design Concept for ILC project
- Life safety of the ILC Underground Facilities

Underground Facilities for ILC Project



International Linear Collider

Workshop on the site design for ILC
Project 2017-1019
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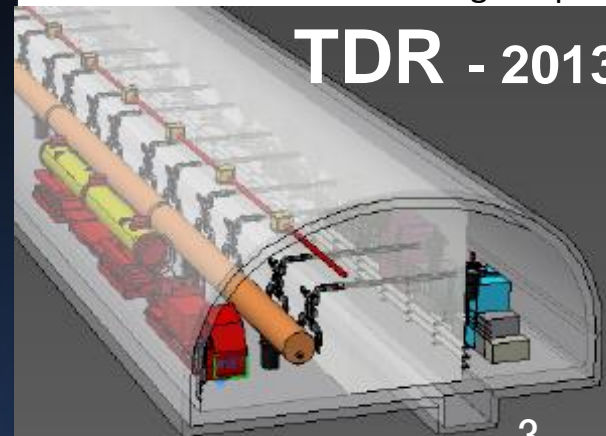
RDR - 2008

Reference Design Report

Collider

Technical Design Report

TDR - 2013



Overall Underground facilities

Cryomodule



SC Cavity



Main Linac e^+

陽電子 (阳电子)

Main Linac e^-

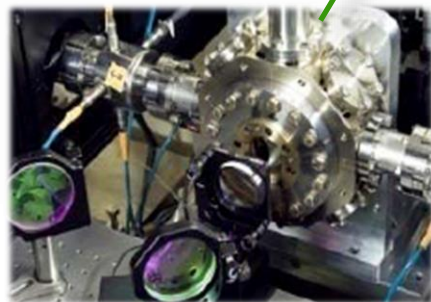
電子 (电子)

Damping Ring

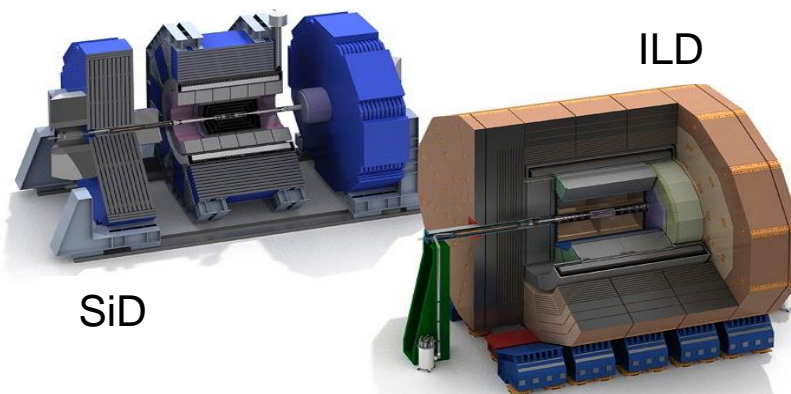
31 km

Detector
測定器 (探测器)

BDS



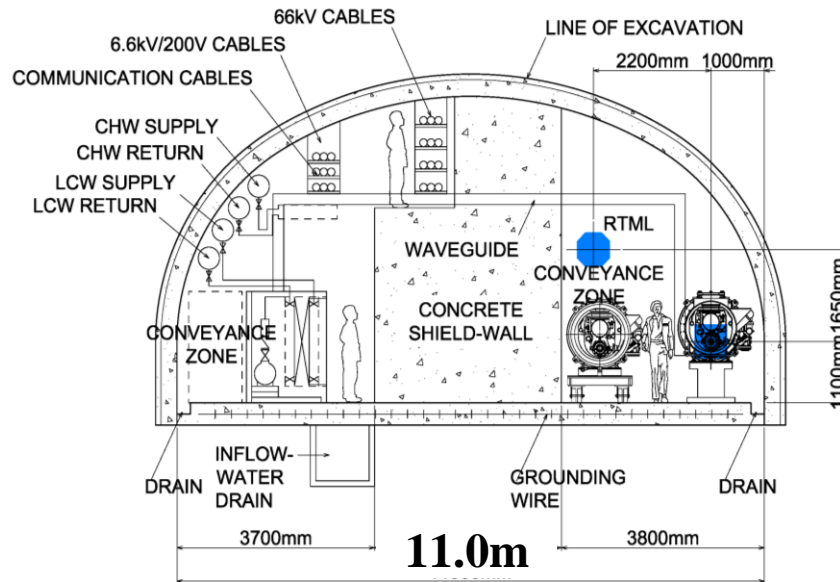
Final Focus



The tunnel standard section

In Japanese Single tunnel configuration

Main Linac cross section

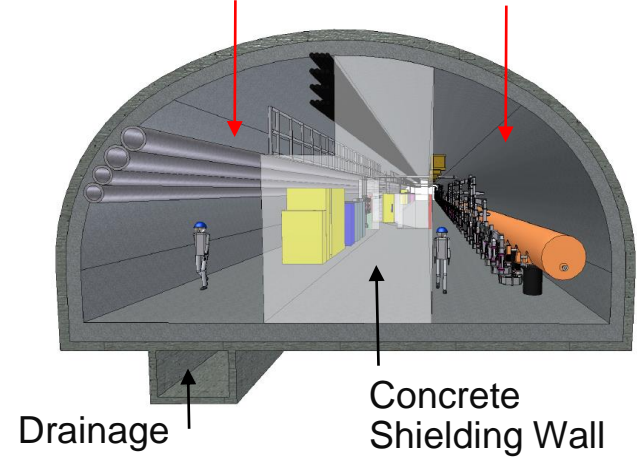


White fish meat “Kamaboko”

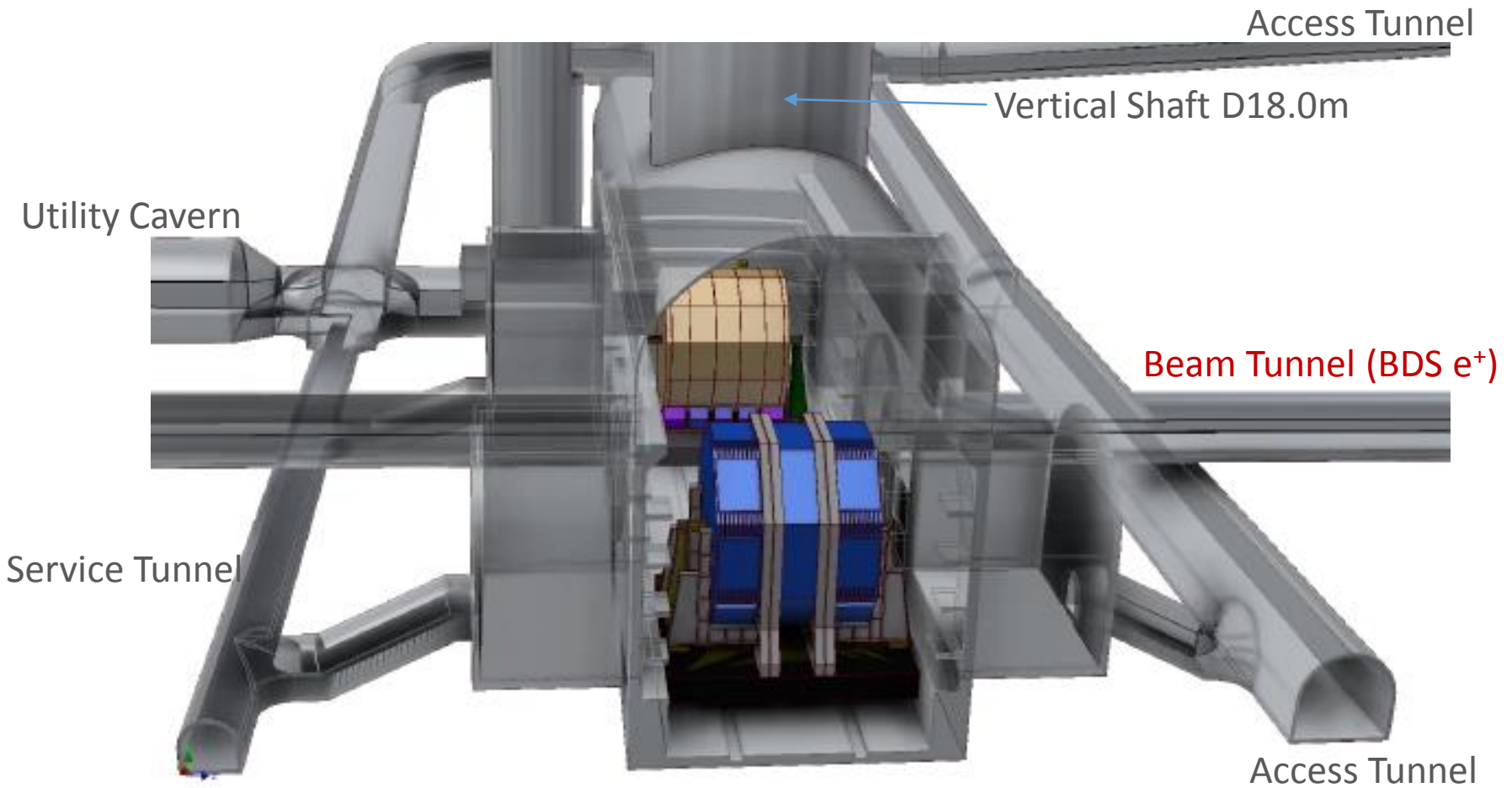


Kamaboko-Tunnel

RF Tunnel *Beam Tunnel*



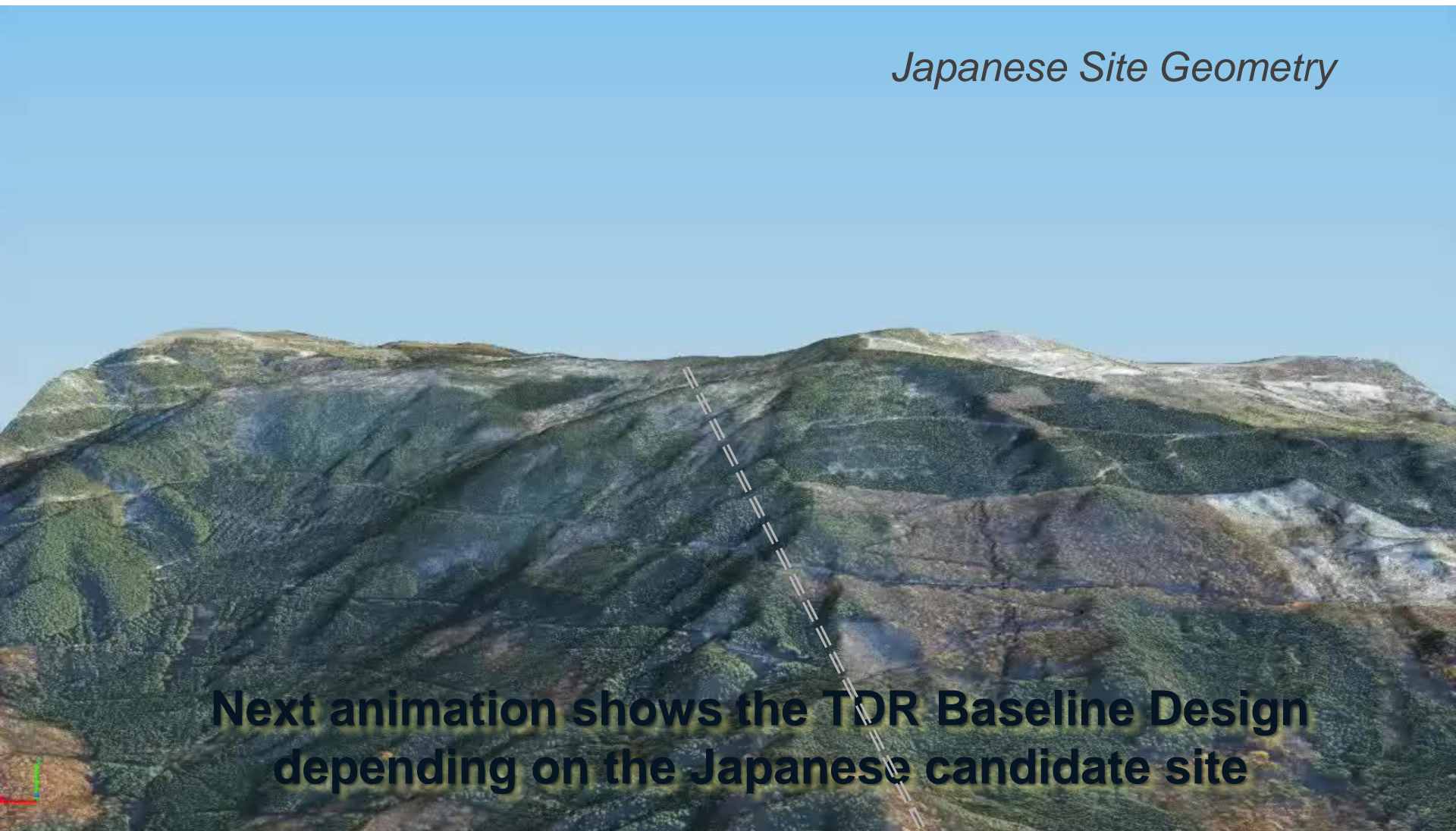
Latest Design of Detector Hall



3D Design Integration Model



Japanese Site Geometry



Next animation shows the TDR Baseline Design depending on the Japanese candidate site

Discussion:

How to create the Design Concept for ILC Project

Utilization of Underground Space in Japan

	Surface	Underground
		Shallow Deep
Surface Facilities (Architecture)	<i>High-rise Build. /Office, Hospital, Residence</i>	
Commercial & Life-related	←→	
Transport Infrastructure	←→	
Urban Redevelopment	←→	
Energy-related facilities	←→	
Disaster Prevention	←→	
Culture & Research-related	←→	
Nuclear Waste Storage	←→	



Office Build.

Hospital

Shopping Mole

Subway

Power Station

Research Cavern

Nuclear Waste Storage

Underpass

Energy Storage

Disaster Prevention

Workshop on the space design for UG
2017.1019

Stress factors caused by Space

➤ *Five kind of Stresses* caused by **Space** / Environment

Stress due to:

① Light Environment

- Natural Light
- Biological clock rhythm

② Air Stagnation

- Temperature & Humidity
- Smell (mold, fungus)

③ Temperature difference

- Cold feel of the Interior Materials
- A sudden change in temperature

④ Occlusion, Oppression

- Closed space, Narrow entrance
- Interior color (darkness, gloominess)

⑤ Communication discord

- Common space for Exchanges
- Relaxing casual atmosphere

- Above 5 stress factors were extracted at the design stage of KEK **Surface Building** No.4 (4-Gokan)
- Some points should also be considered in our underground space? We need to discuss in future planning stage.