

Current activities with CERN and industrial landscape in Thailand

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CERN – Thailand Meeting on Procurement

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Thailand's National Electronics and Computer Technology Center (NECTEC)



Synchrotron Light Research Institute (SLRI)



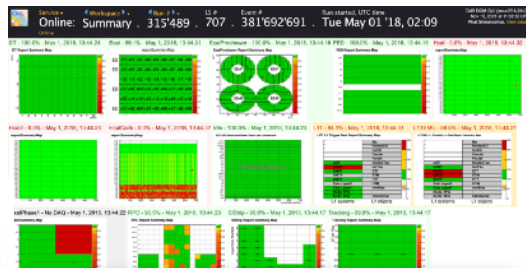
The Federation of Thai Industries (FTI)

- Electrical, Electronics, And Air conditioning Cluster
- Construction Materials Cluster

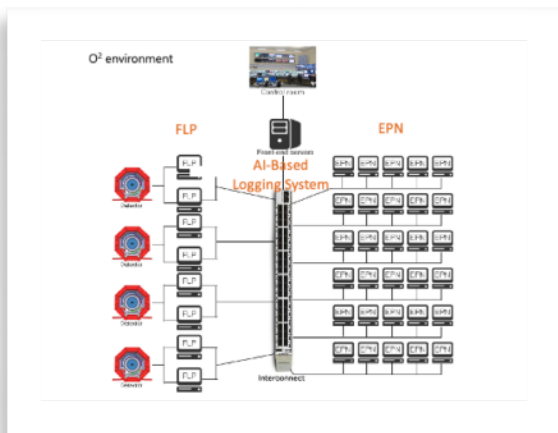
Current activities with CERN (in parallel with Physics)



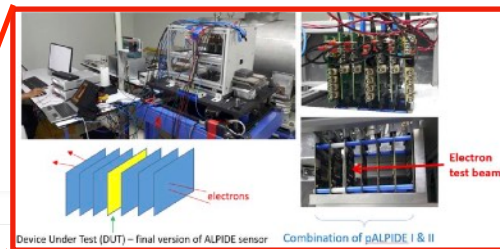
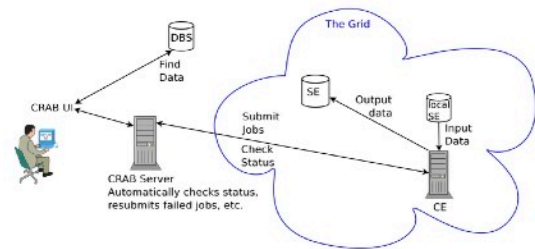
CMS Online Monitoring GUI
 CMS Data Quality Monitoring
 - Tracker - ML application



ALICE O² AI-based Logging System



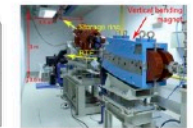
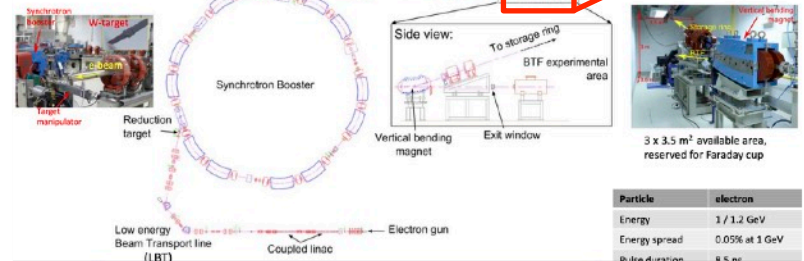
Cms Remote Analysis Builder



Device Under Test (DUT) - final version of ALPIDE sensor
 Combination of pALPIDE 1 & II



Beam-test facility



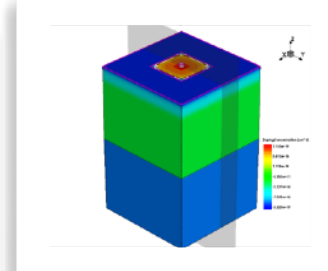
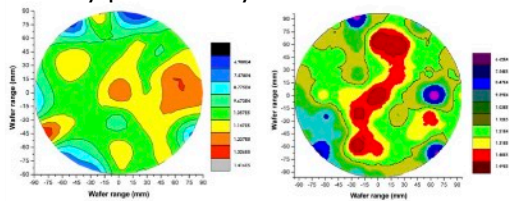
3 x 3.5 m² available area, reserved for Faraday cup

Particle	electron
Energy	1 / 1.2 GeV
Energy spread	0.05% at 1 GeV
Pulse duration	0.5 ns



CMOS-like sensor for pixel detector

Resistivity profile study



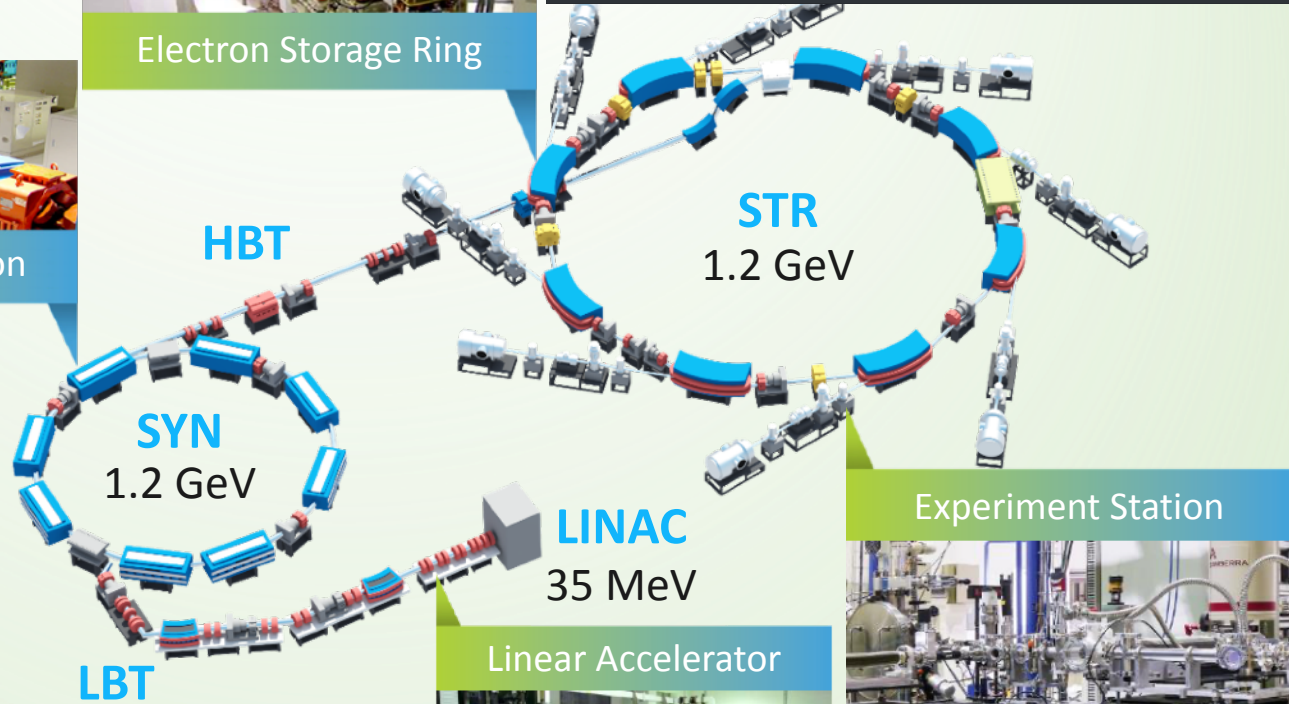
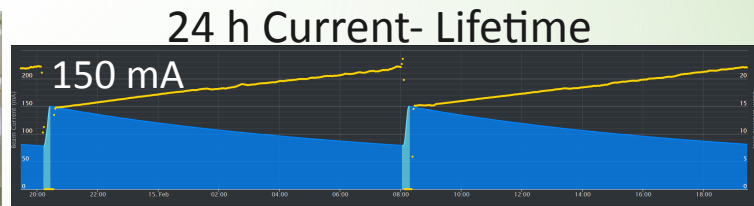
Siam Photon I 1.2 GeV



Booster Synchrotron



Electron Storage Ring

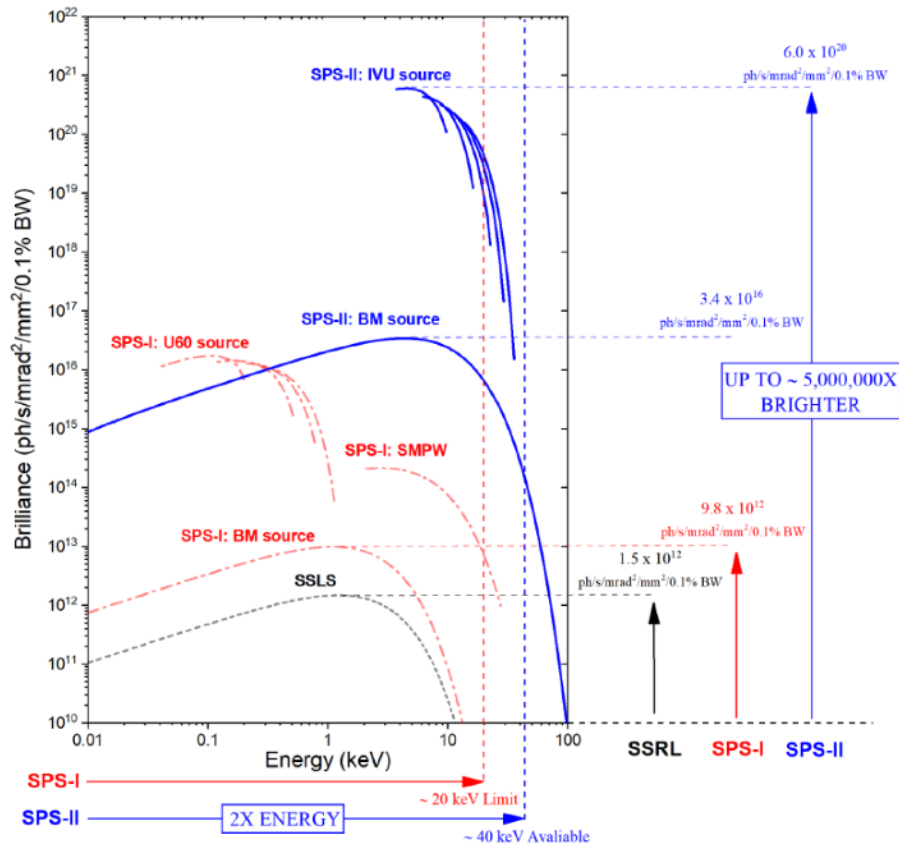


Linear Accelerator



Experiment Station





Korat 1.2 GeV



EECi-Rayong 3.0 GeV



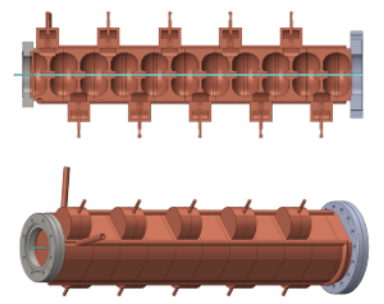




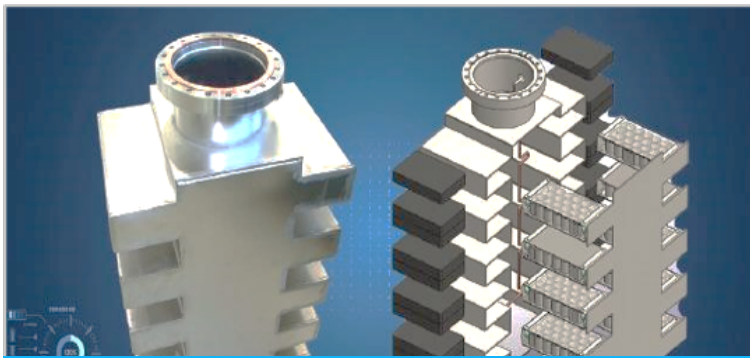
Industrial Thin Film Coater



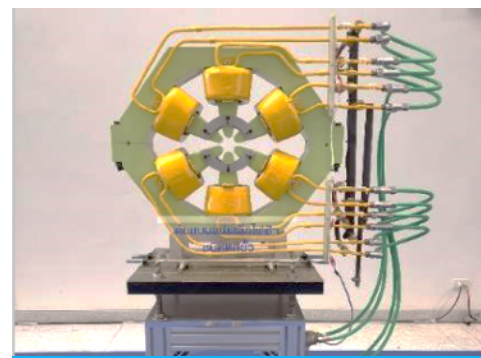
Industrial Thin Film Coater



Linac structure



UHV Pump

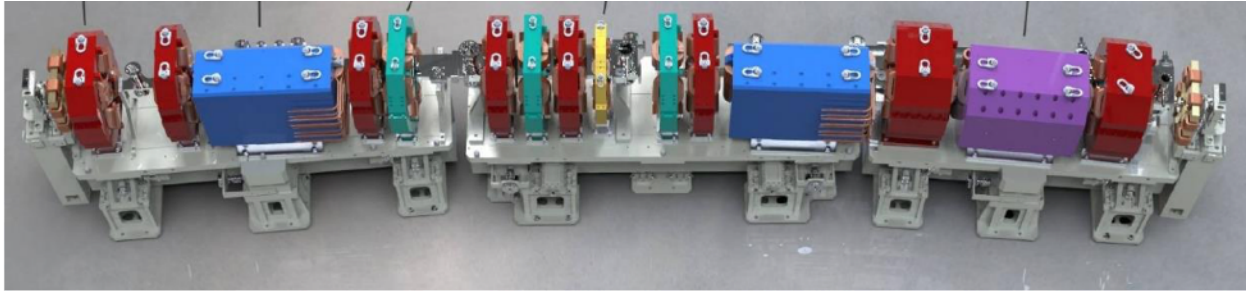


Magnet

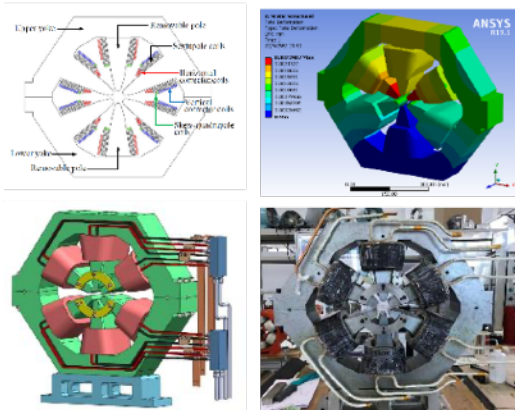


Thermal Vacuum Chamber

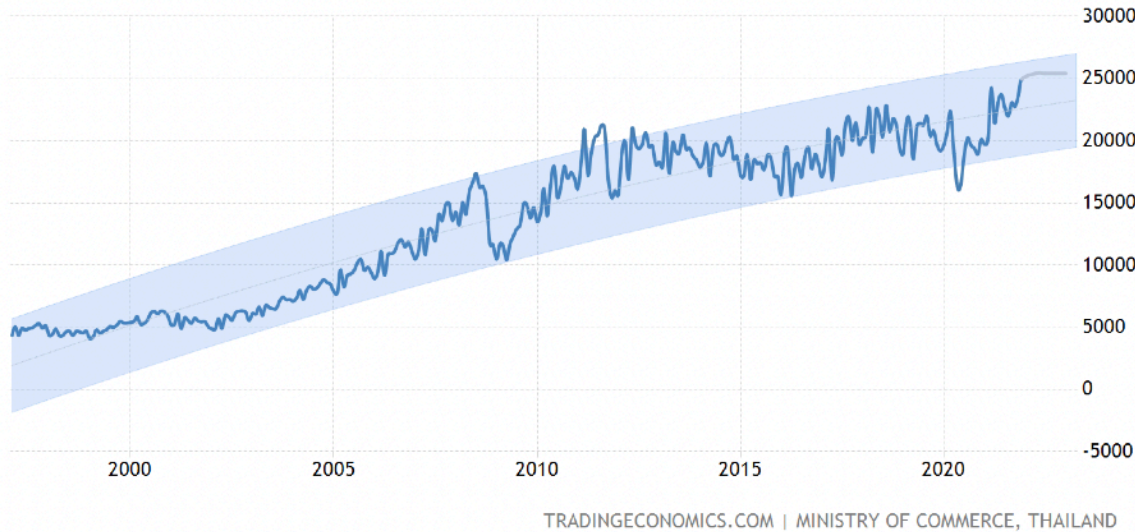
Made in Thailand : Domestic Content > 50%



- 16 Magnet Prototypes 20 micron precision
- Storage Ring UHV Chamber Prototypes
- Girders Prototypes 50 micron precision



Thailand Exports



Thai exports account for around 65 percent of the GDP. Main manufactured goods (approx. 86 percent of total shipments) include

- electronics (14 percent),
- vehicles (13 percent),
- machinery and equipment (7.5 percent),
- and foodstuffs (7.5 percent).

Major export partners are

- China (12 percent),
- Japan (10 percent),
- the United States (10 percent),
- the European Union (9.5 percent).

Thailand Exports



Total: \$1.6B (2020)

- Machinery, nuclear reactors, boilers
- Air Conditioning Machines: \$200M
- Parts, Accessories, of Typewriters, Calculating Machines: \$35M
- Refrigerators, Freezers, Heat Pumps \$27M
- Electrical, electronic equipment: \$226M



Total: \$3.1B (2020)

- Meat, fish and seafood preparations: \$588M
- Vehicles other than railway, tramway: \$457M
- Electrical, electronic equipment: \$375M



Total: \$4.0B (2019)

- Machinery, nuclear reactors, boilers
- Parts, Accessories, of Typewriters, Calculating Machines: \$455M
- Air Conditioning Machines: \$178M
- Taps, Cocks, Valves and Similar Appliances for Pipes, Tanks or the Like: \$131M
- Electrical, electronic equipment: \$987M



Total: \$34B (2020)

- Machinery, nuclear reactors, boilers
- Parts, Accessories, of Typewriters, Calculating Machines: \$5.72B
- Air Conditioning Machines: \$609M
- Refrigerators, Freezers, Heat Pumps: \$325M
- Plastics: \$3.2B
- Electrical, electronic equipment: \$7.5B



Total: \$23B (2020)

- Electrical, electronic equipment: \$5.3B
- Machinery, nuclear reactors, boilers
- Parts, Accessories, of Typewriters, Calculating Machines: \$640M
- Air Conditioning Machines: \$360M
- Refrigerators, Freezers, Heat Pumps: \$355M



Total: \$30B (2020)

- Rubber: 4B
- Machinery, nuclear reactors, boilers
- Parts, Accessories, of Typewriters, Calculating Machines: \$1.0B
- Air or Vacuum Pumps, Air or Other Gas Compressors: \$419M
- Spark-ignition Internal Combustion Piston Engines: \$219M
- Plastics: \$3.2B
- Electrical, electronic equipment: \$3.1B

Ref: <https://tradingeconomics.com/thailand/exports>

The Federation of Thai Industries (FTI)

Formerly known as the Association of Thai Industries (ATI), the Federation of Thai Industries (FTI) came into existence on December 29, 1987. It was a transformed body of ATI, which was created in 1967.



FTI is an industrial private organization that brings together industrial leaders to promote Thailand's socio economic development. The main objectives of FTI are to represent Thai manufacturers at both national and international levels, to help promote and develop industrial enterprises, to work with the government in setting up national policies, and to offer consulting services to members.

FTI is a full-service organization that cooperates with the government to help mobilize Thai industries to reach international markets. It acts as a **“match-maker”** between foreign industrialists and Thai resources which combine the financial strength, planning ability, and persuasive power of Thailand's industrialists.

The Federation of Thai Industries (FTI)

Automotive Cluster

Health and Beauty
Products Cluster

Printing and Packaging Cluster

Petrochemical Cluster

Environment Friendly
Energy Cluster

Electrical Electronics and
Air-Conditioning Cluster

Construction Materials Cluster

Fashion and Lifestyle Cluster

Food Processing Cluster

Engineering Machinery and
Metal Work Cluster

Natural Rubber and
Rubberwood Cluster



EETIC-FTI & TETA

**The Electrical, Electronics, Telecommunications And Allied Industries
Club, The Federation of Thai Industry (EETIC-FTI)**

**Thai Electrical, Electronics and Telecommunication Industries
Association (TETA)**



- ❑ EETIC-FTI established in 1977
- ❑ TETA established in 2007
- ❑ Members 200 Companies

Vision


To Promote, support the capabilities of members enter advanced technology.

Object

To promote and support members of the Electrical & Electronics Industries. And cooperate with Government agencies and allied agencies.

Electrical and Electronic Industry Overview

It is the number 1 exporter with an average export value of more than fifty-five billion euros per year and in 2021 has an export value of over sixty two billion euros an increase of 20 percent from 2020.



EE Products	Export Value 2020 (Billion Euro)	Export Value 2021 (Billion Euro)	increase%
Electrical	20	24	20
Electronics	31	37	19

Cluster & Supply Chain of Electrical and Electronics Industry in Thailand

Initial

Design Wafer Ic



3rd -tier Suppliers

- Wafer.
- Metal
- Lead
- Ceramics
- Silver
- Plastic
- Aluminum
- Copper
- Glass
- Silicon
- Tooling

2nd -tier Suppliers

- Suspension
- Motor Parts
- Sub-Assembly & Coil
- PCB

1st -tier Suppliers

- Head Gimbal assembly
- Head Stack assembly
- Motor
- Base / Cover
- Actuator
- PCBA
- Integrated Circuit
- Semiconductor

Final Manufacturer

- Electronics manufacturing services (EMS)
- Brand Owner

Cluster Electronics

Cluster Electrical

Cluster Electric Power

Intermediate

Manufacturing of electronic components in Tier 1 and 2.



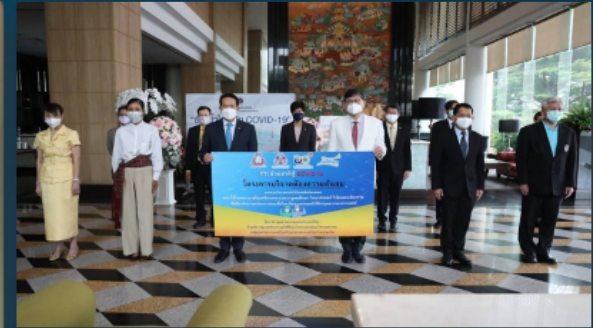
Final Product

HDD, Electrical Appliances , Air conditioning and Electronics



Collaboration with R&D and Academic sectors

- Negative Pressure Room with Synchrotron Light Research Institute



Membership Category

Electrical

RHVAC



Transformer



Switch Board Switch gear



Critical power system

Lighting



Cable Tray

Motors



Power supplies



Etc.

Electronics

HDD



Fiber optic



Active and passive components

Electronics Manufacturing Service (EMS)



Power Electronics

Etc.



Cement



Glass



Plastic



Iron and Steel



Roofing and Accessories

Wood



Aluminium



THE LEADER IN PAINT TECHNOLOGY

Chemical (Paint)

