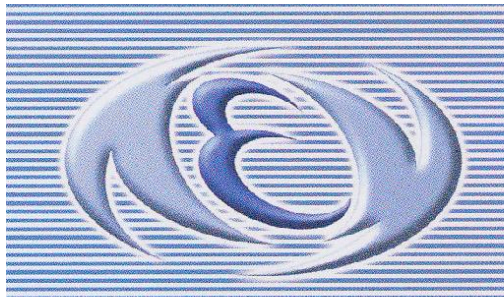


KEK Roadmap for Future Projects and Strategy toward Super-KEKB



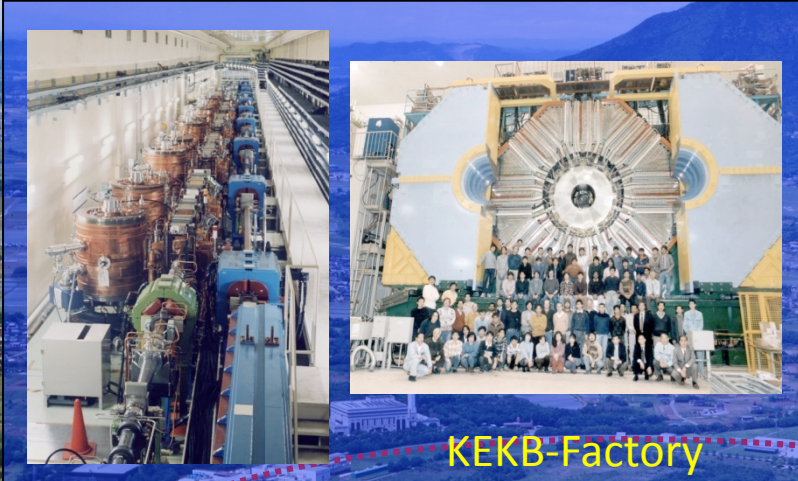
Atsuto Suzuki

***KEKB Review Committee
(KEK, February 9, 2009)***

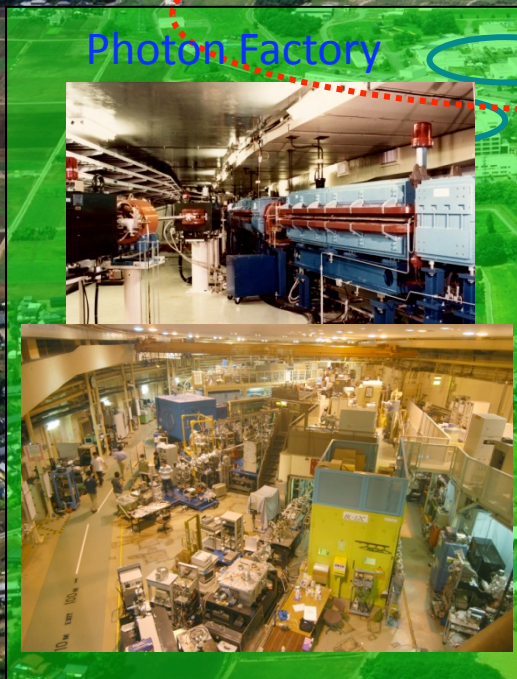
KEK Current Core Activities



J-PARC in Tokai



KEKB-Factory



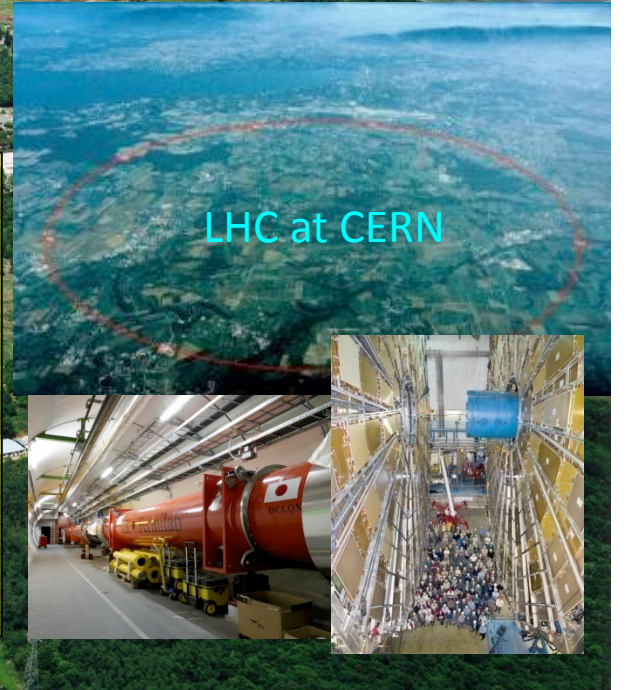
Photon Factory



ATF

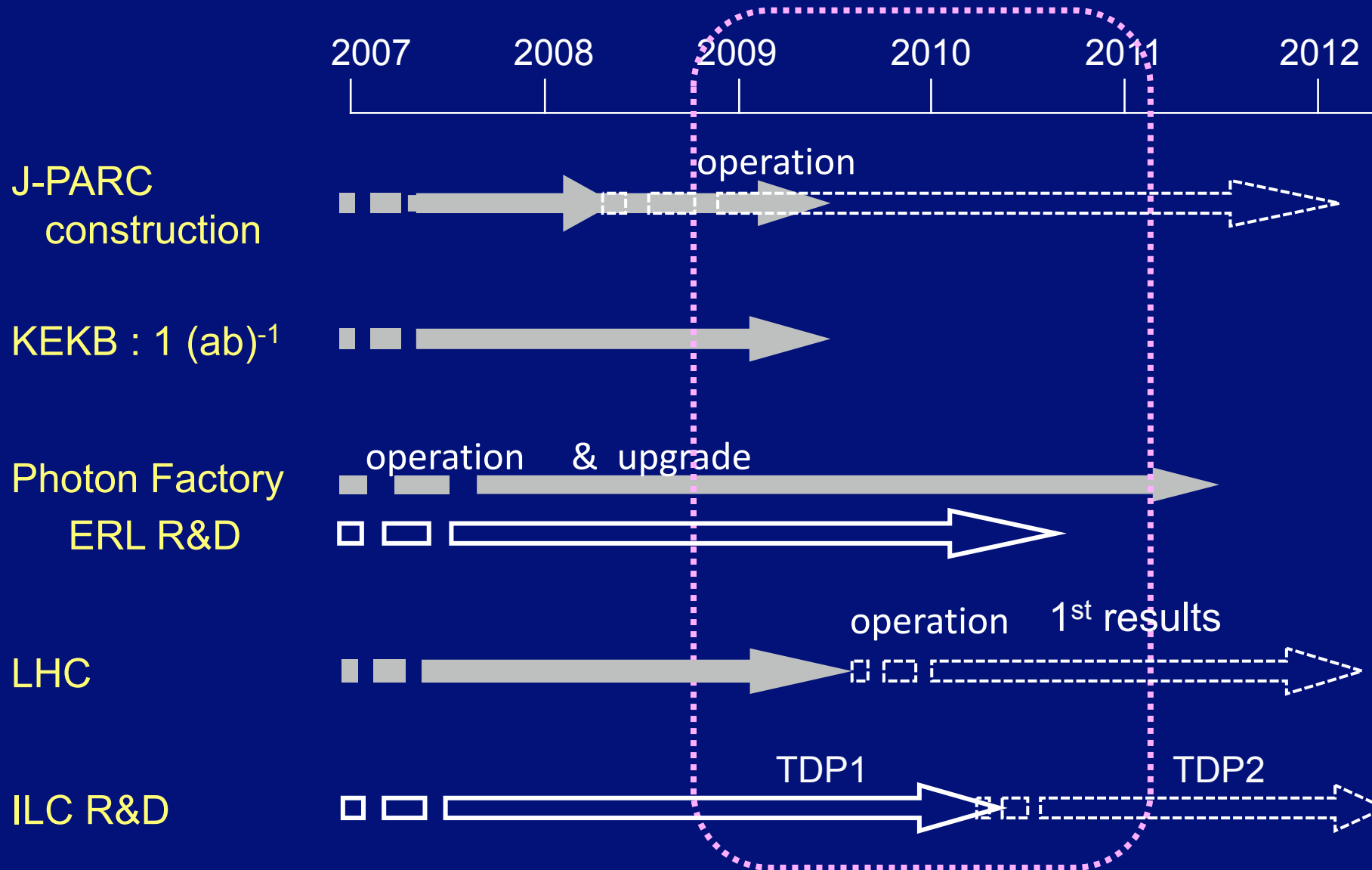


STF



LHC at CERN

Timeline of Current Projects

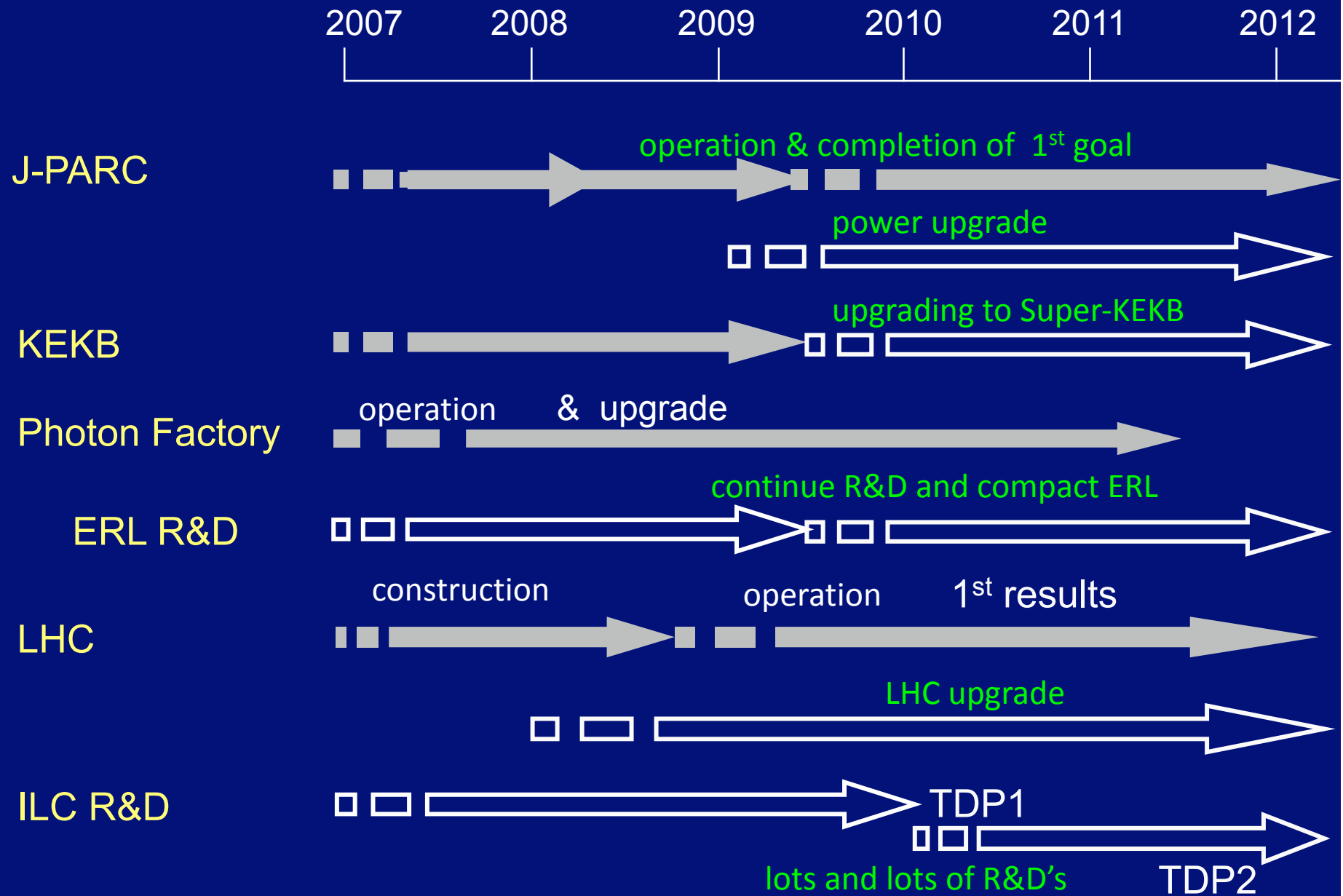


International Roadmap Review Committee in March 2008



Y. K. Kim, R. Heuer, J. Ellis , J. Rosner , M. Tigner , S. Ozaki,
A. Hutton, J. Zinn-Justin, J. White, M. Gibson, K. Hodgeson,
H. Takeda, T. Kishimoto, M. Sakata, T. Yamanaka

Summary of KEK Roadmap

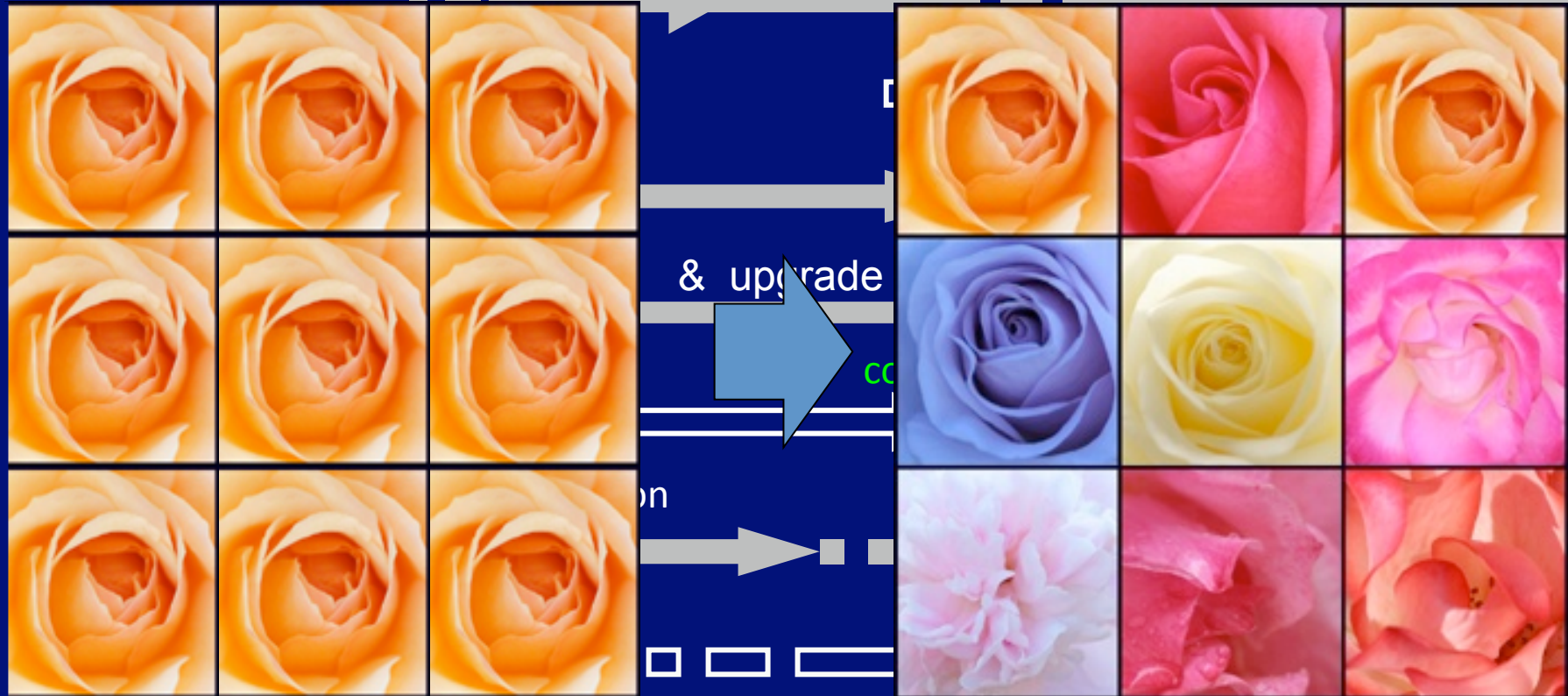


Summary of KEK Roadmap

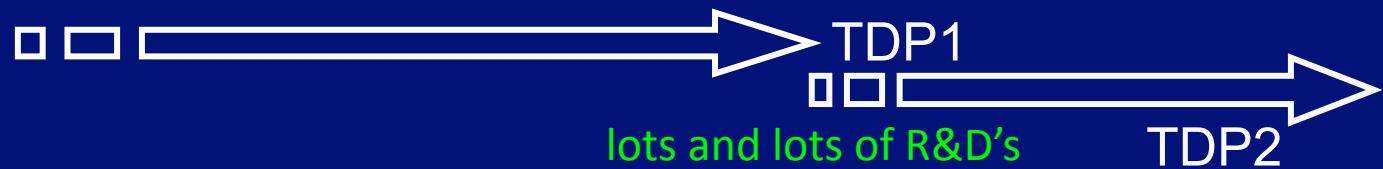
2007 2008 2009 2010 2011 2012

J-PARC

operation & completion of 1st goal



ILC R&D

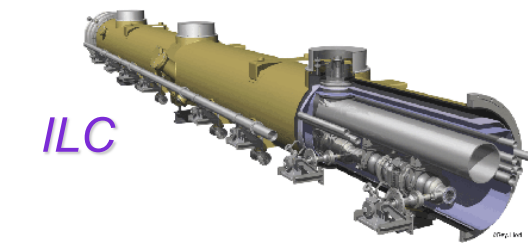


High Energy Physics in the Next Decade

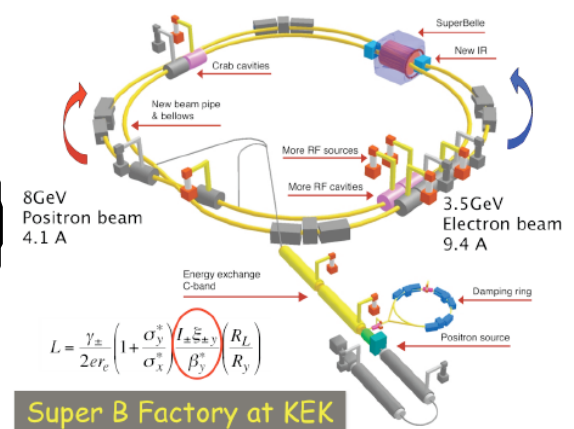
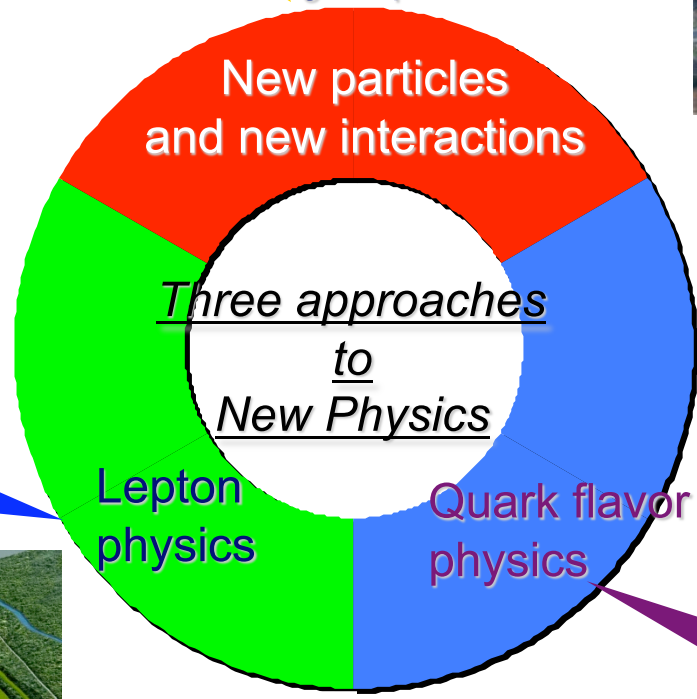


Energy frontier experiments
LHC, ILC, ...

Higgs, SUSY, Dark matter,
New understanding of space-time...



ν exp., μ LFV, τ LFV,
 $g_\mu - 2$, ...



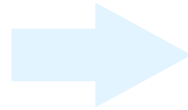
Super-KEKB Factory,
K exp., etc.



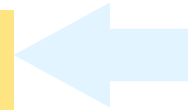
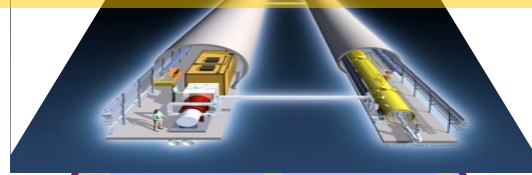
Neutrino mixing/masses,
Lepton number non-conservation...

CP asymmetry, Baryogenesis,
Left-right symmetry, New sources
of flavor mixing...

Quest for Birth-Evolution of Universe



International Linear Collider (ILC)



Quest for Unifying Matter and Force

Lepton CP Asymmetry

Power-Upgrade



J-PARC

Scientific Activities
Technology Innovation
Encouraging Human Resources



LHC

Beyond Standard Physics

Super-KEKB



KEK-B

Quark CP Asymmetry

Quest for Neutrinos



[Origin of Matter]

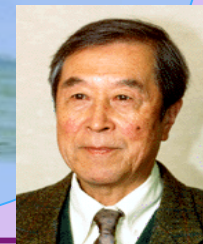
Quark



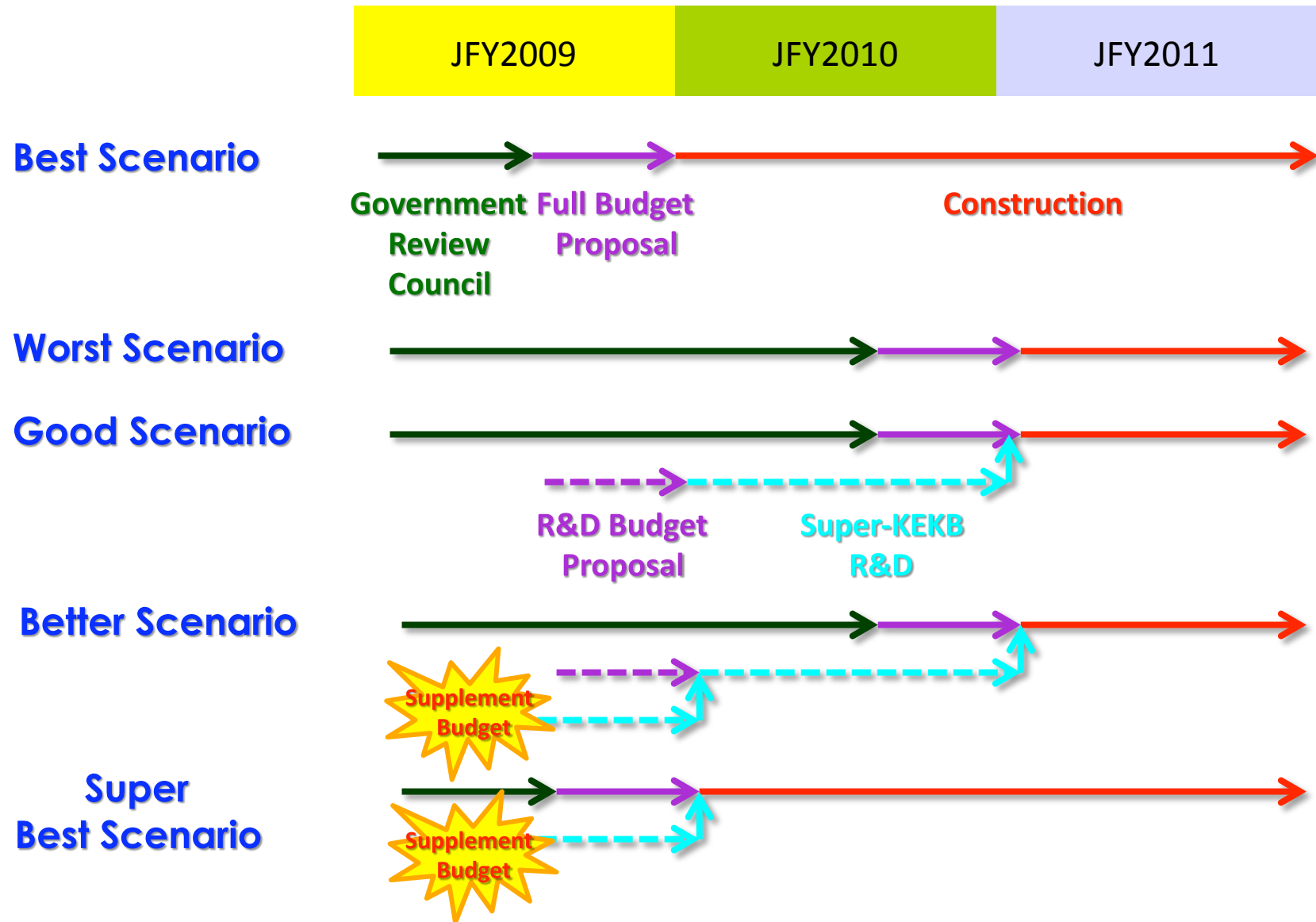
Quest for 6 Quarks

[Origin of Force]

Higgs Particle [Origin of Mass]



Budgetary Process toward Super-KEKB



Budget Requirement for Coming 5 Years



Super-KEKB : (300-400) M\$/construction + 100 M\$/operation
(-> 60 M\$)



ILC R&D : ~200 M\$/5 years



J-PARC : ~90 M\$/ year (-> 70 M\$)



Compact-ERL, LHC-upgrade : ???

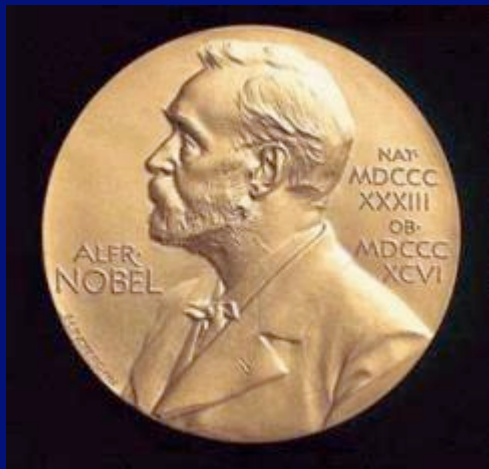


BELLE at KEK-B and Babar at SLAC confirmed Kobayashi-Maskawa Model



Kobayashi

Maskawa



Congratulations !

The Nobel Prize in Physics 2008



Photo: University of
Chicago

Yoichiro Nambu



Photo: KEK

Makoto Kobayashi



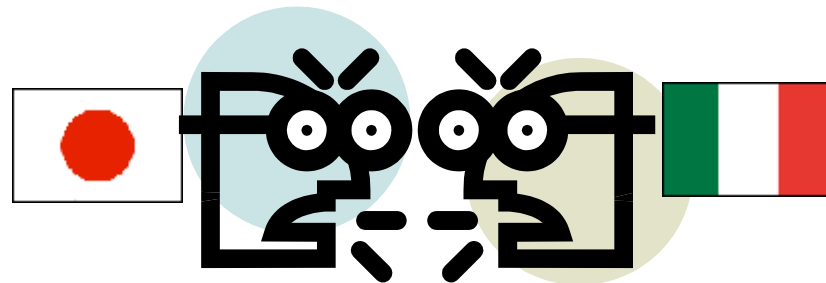
Photo: Kyoto University

Toshihide Maskawa

Super-KEKB vs. SuperB in Italy

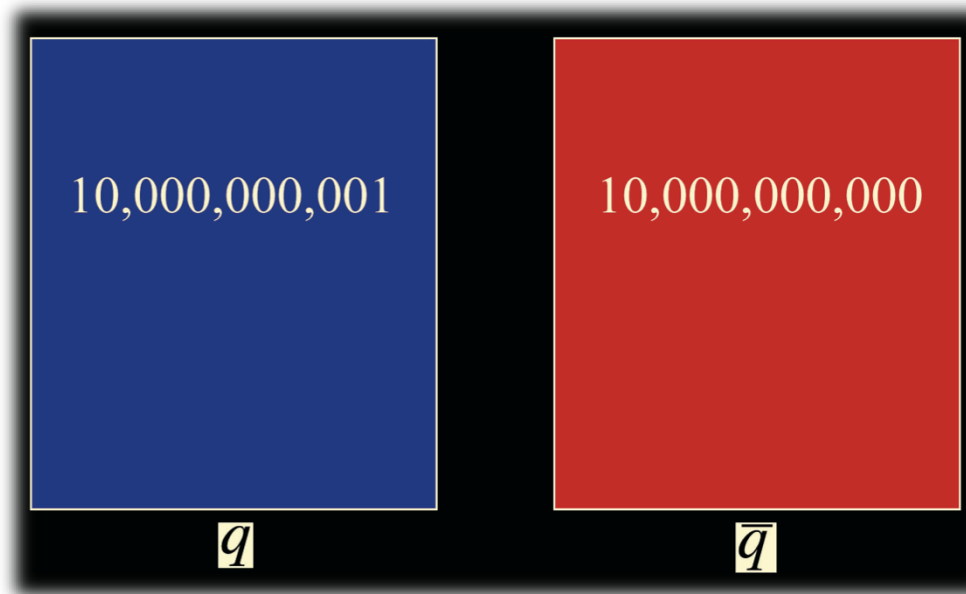
(saying to myself)

- orthodox approach
Forging the international strategy for Super-B Factory
in one of ICFA sub-panels

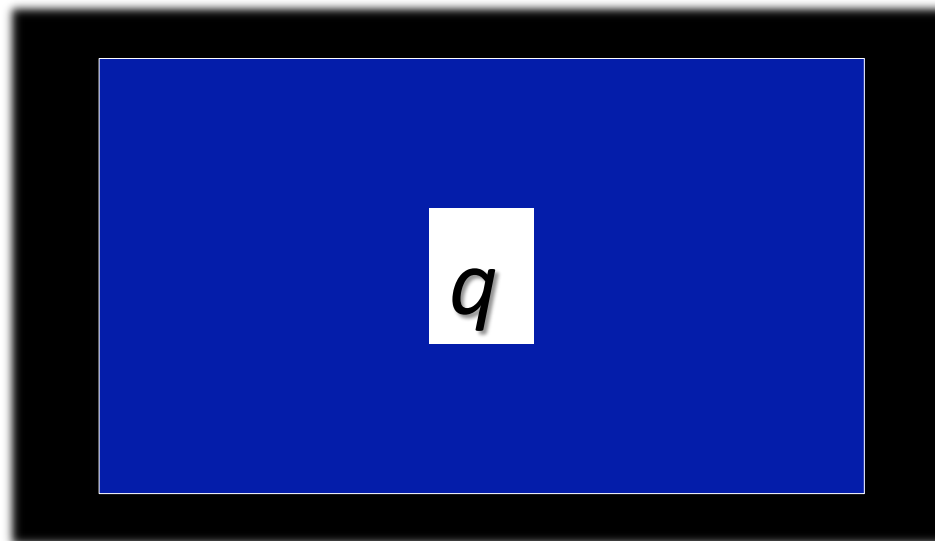


- *matter-dominated universe scenario*
or β vs. VHS scenario

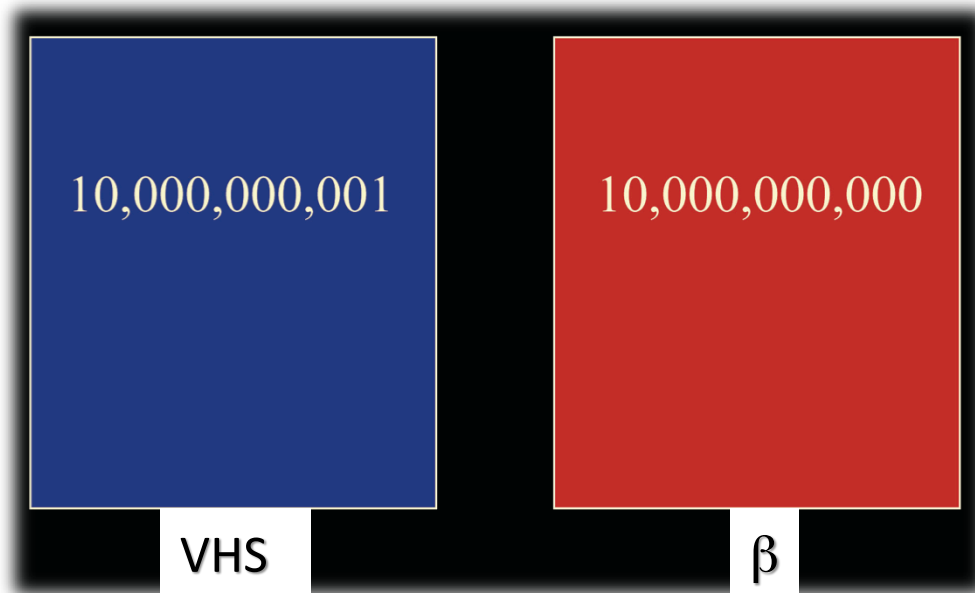
Early Universe



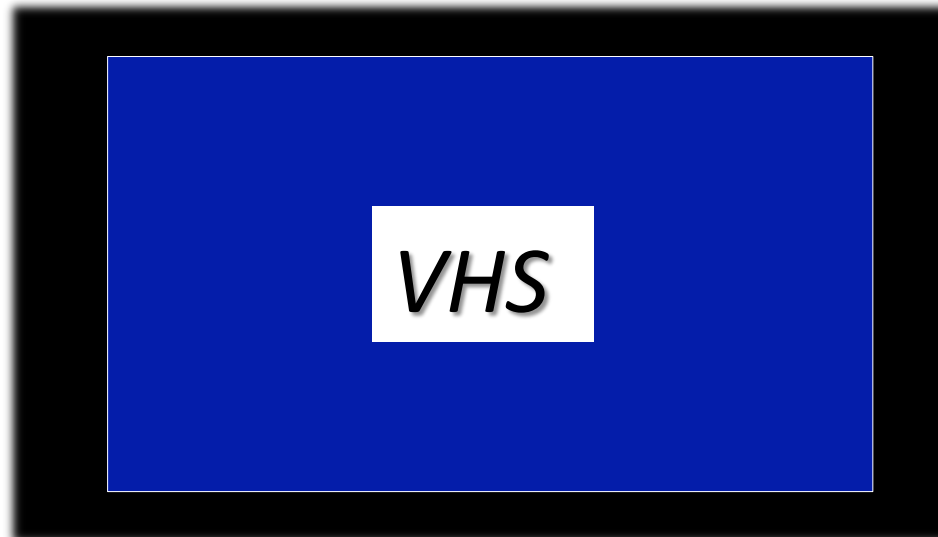
Present Universe



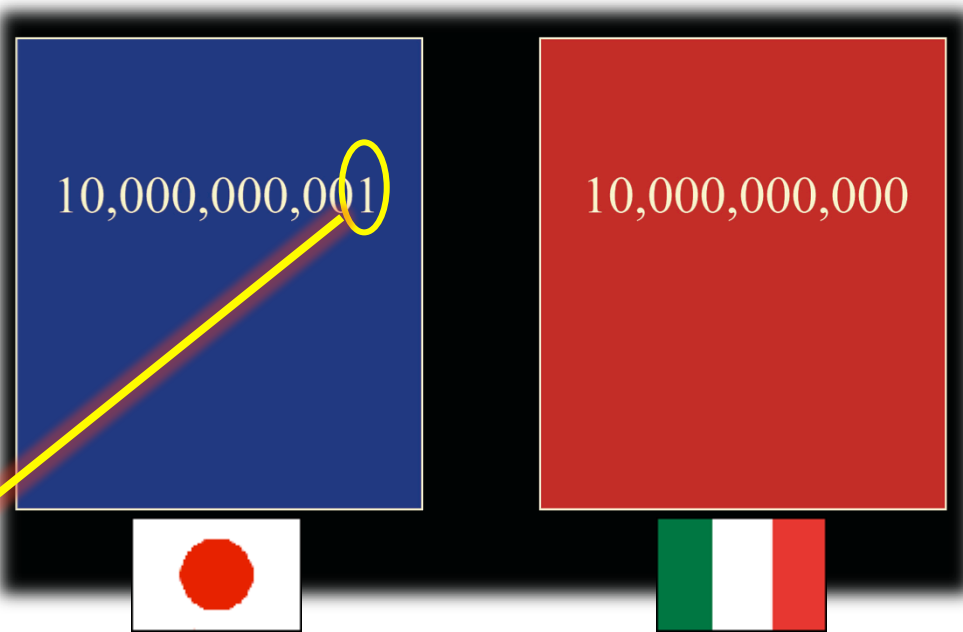
Early Stage of
Market Share for
Video-Tapes



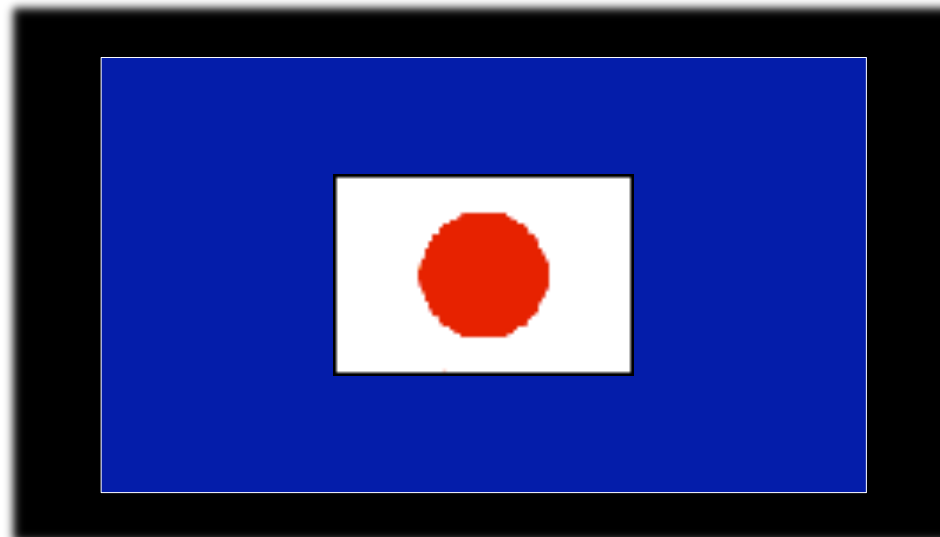
Present



Present Super-B Factory



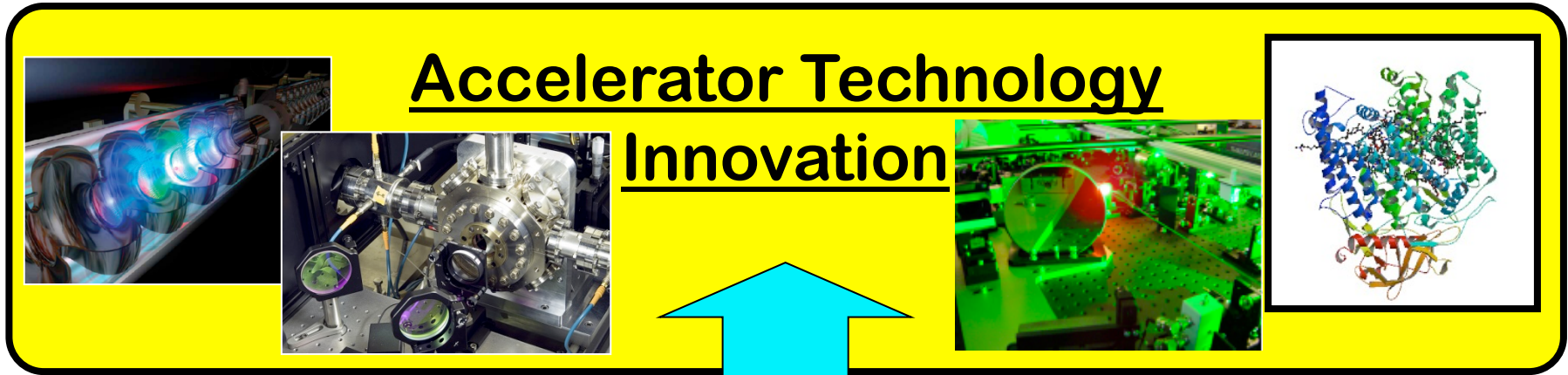
Early Approval of Full Budget



Conclusion

Image of the Roadmap for Particle Physics in the Next Decade





Best Knowledge
and Expertise
from KEK

Best Knowledge
and Expertise
from
Industries

The world best
joint-research center

Promoter's Meeting on Industry – KEK Collaboration Council

2008. 02.21



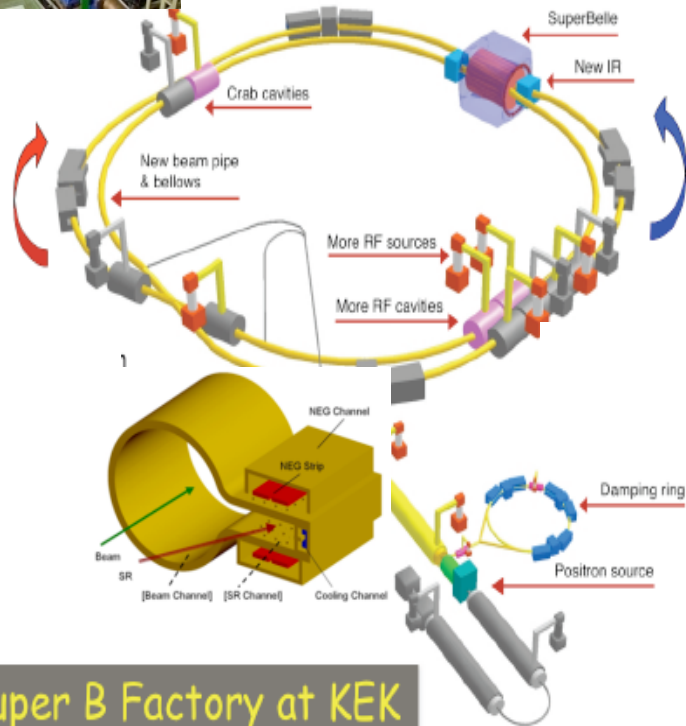
Industry – KEK Collaboration Council
(June 11, 2008)



KEK-B Upgrade : SuperKEK-B

- Asymmetric energy e^+e^- collider at $E_{CM}=m(\Upsilon(4S))$ to be realized by upgrading the existing KEK-B collider.
- Initial target: **10×higher luminosity** $\cong 2 \times 10^{35}/\text{cm}^2/\text{sec}$
- Final goal: **40×higher luminosity** $= 8 \times 10^{35}/\text{cm}^2/\text{sec}$

after 3 years
shutdown



ASAP

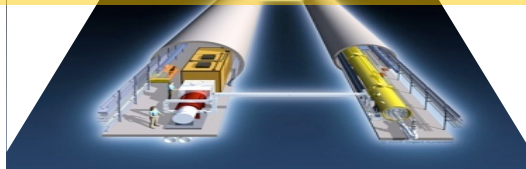


LHCb



Super B Factory at KEK

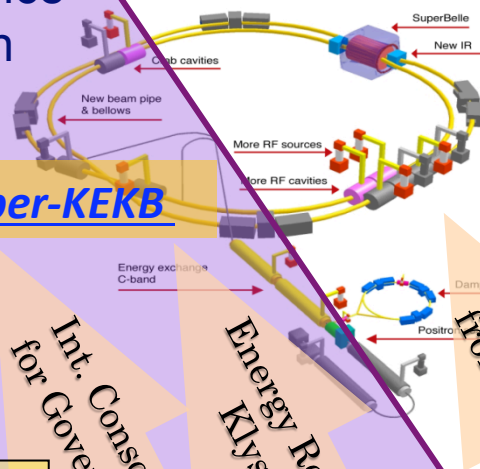
International Linear Collider
(ILC)



Scientific Activities
Technology Innovation
International Governance
Encouraging Human
Resources

Power-Upgrade

Super-KEKB



Int. Consortium
for Governance

Energy Recovery
Klystron

Power Generation
from Waste Heat



J-PARC



ILC Test Facility

ATF

STF



KEK-B

SuperKEKB cost



- first class : 700 M\$

nightmare



- business class : 500 M\$

sleepless-nights

- economy class : 350 M\$

