Asia/Oceania Focus: Session 5.1

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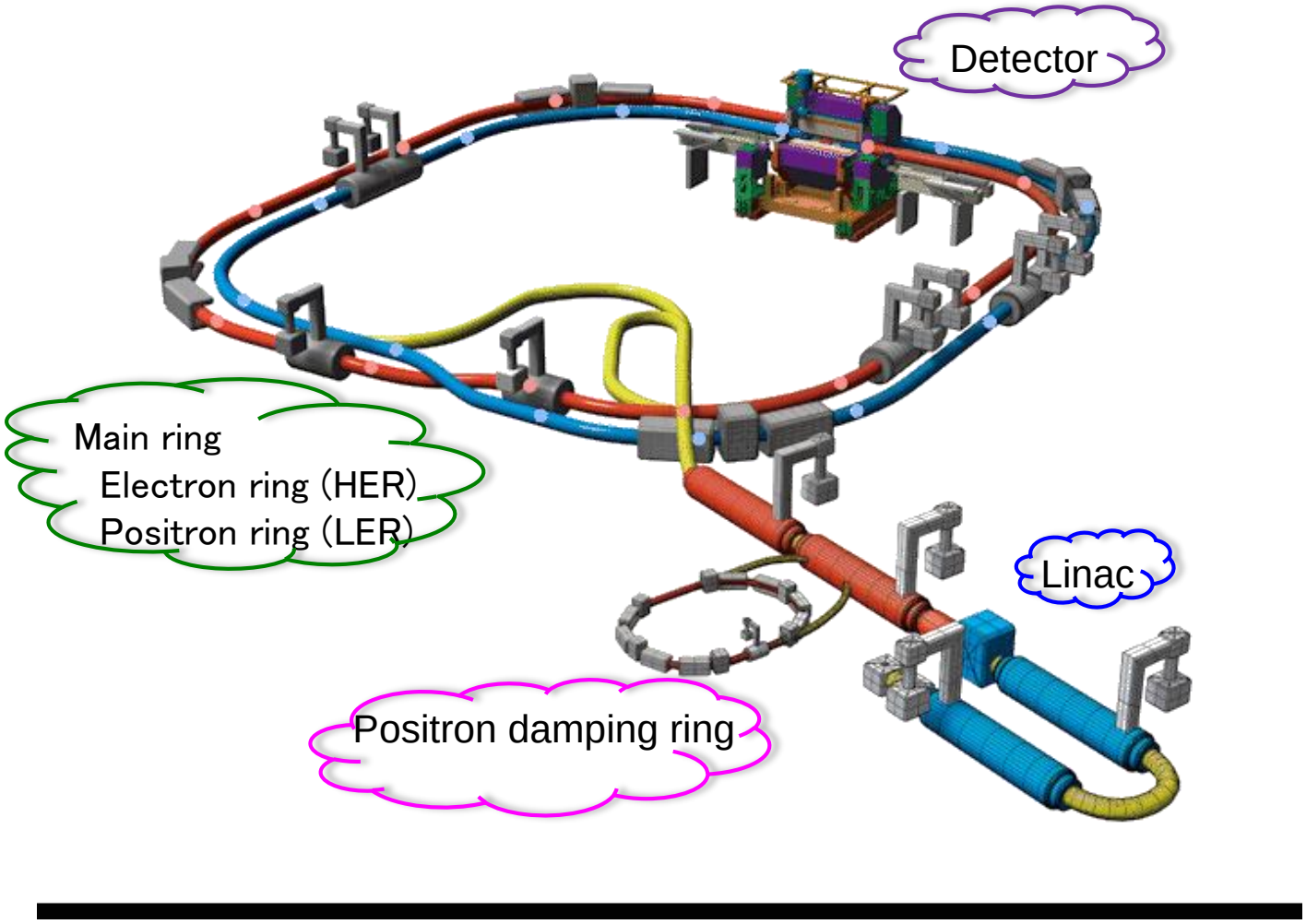
Dr. Makoto Tobiyama

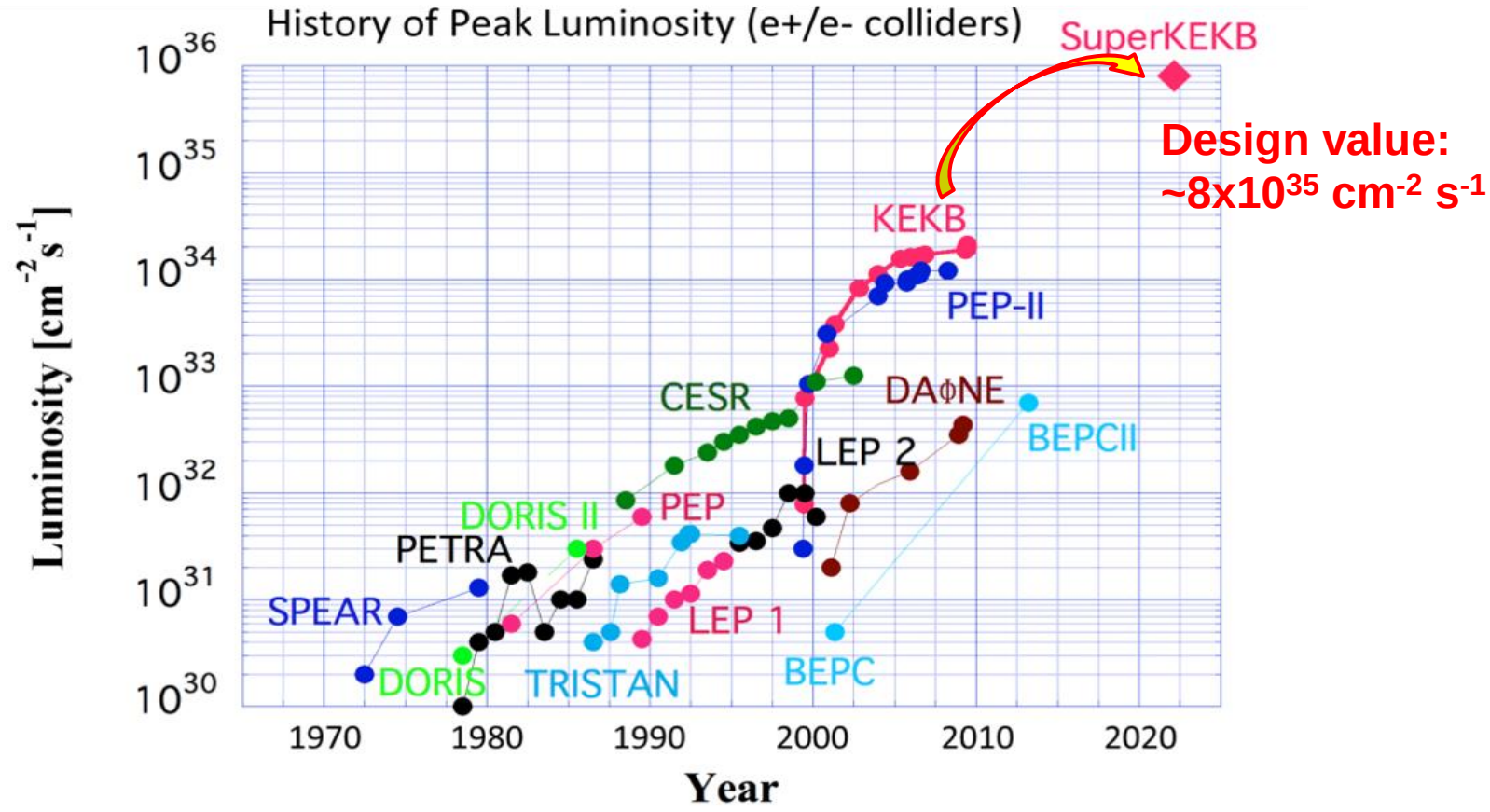
- **Head of Accelerator Division 4 (SuperKEKB Accelerator), Accelerator Laboratory, KEK, Japan**
- **Research Field**
  - Bunch-by-bunch feedback systems for circular accelerators
  - Study of beam instabilities.
  - Beam instrumentation for electron/positron ring

SuperKEKB collider



Feature

Aim the world-highest luminosity (a measure of collision frequency) by using a novel "nano-beam scheme" collision.



Many challenges

Low emittance, small beam size at IP

- Realize the low emittance optics using existing lattice as much as possible (to reduce construction costs)
- Sevier non-linear effect, small dynamic aperture
- Strong, ultra-fine tunable superconducting final focus
- Strong, stable and high-quality injector
  - Positron damping ring, Photo cathode RF gun
- Wideband, fast IP feedback system
- Beam instrumentations

High beam current

- **Strong injector**
- **Low impedance vacuum components**
- **Strong RF systems**
- **Bunch feedback systems to suppress coupled-bunch instabilities**