

## Meeting Minutes – Cavity BPM and Cryomodule Assemblies with Quadrupole Magnet

Date: [29th May 2025]

### Participants:

- Akira Yamamoto (AY)
  - Hiroshi R Sakai (HS)
  - Yasushi Arimoto (YA)
  - Tomohiro Yamada (TY)
  - Nuria Fuster (NF)
  - Laura Pedraza (LP)
  - Javier Olivares (JO)
  - Juan Carlos Fernández (JCF)
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### 1. Cryomodule Status and Planning introduced by Akira-san

- Cryomodule construction is planned for **2027**, currently in the **design phase**.
  - Discussion on how to **share the workload**. The responsibility for the **BPM (Beam Position Monitor)** integration with the cryomodule is still open.
  - Priority is to understand the **common integration**, then decide who will fabricate the BPM.
  - **KEK's budget is tight**. Using a **dummy model** is also an option.
  - **KEK will be responsible for the assembly** of the cryomodule.
  - A **visit to the CO (Center of Innovation)** is planned, where the **clean room** for BPM and cryomodule assembly is located after the meeting.
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### 2. L. Pedraza. Report on BPM.

- **Laura** presents the **working principle of the cavity BPM and its electronics**, along with **initial ATF test results** and future plans.
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### 3. T. Yamada. Report on SCQ-BPM interface design and assembly preparation

- Alignment requirement of **5–10  $\mu\text{m}$**  with respect to the center of the assembly, especially for the **yoke alignment**.
- The ILC cryomodule will be **12.5 m long**, operating between **5 GeV and 250 GeV**, with a **1T magnetic field**.
- The **same magnet design** will be used but reduced in size for the low-energy section.

- A **dummy BPM** is considered for initial testing.
  - Discussion on who can fabricate it: a **mechanical prototype built in-house** or by KEK? Still to be decided.
  - Target: **First test in a test cryostat within one year, by end of summer 2026.**
  - The **interface with the BPM** is a critical element for alignment, with **5  $\mu\text{m}$  tolerance.**
  - Later, a **laser alignment system** will be used for verification, with **100  $\mu\text{m}$  precision.**
  - Overall alignment of the entire cryomodule assembly must be within **0.3 mm.**
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Next meeting scheduled for 15<sup>th</sup> of July.