



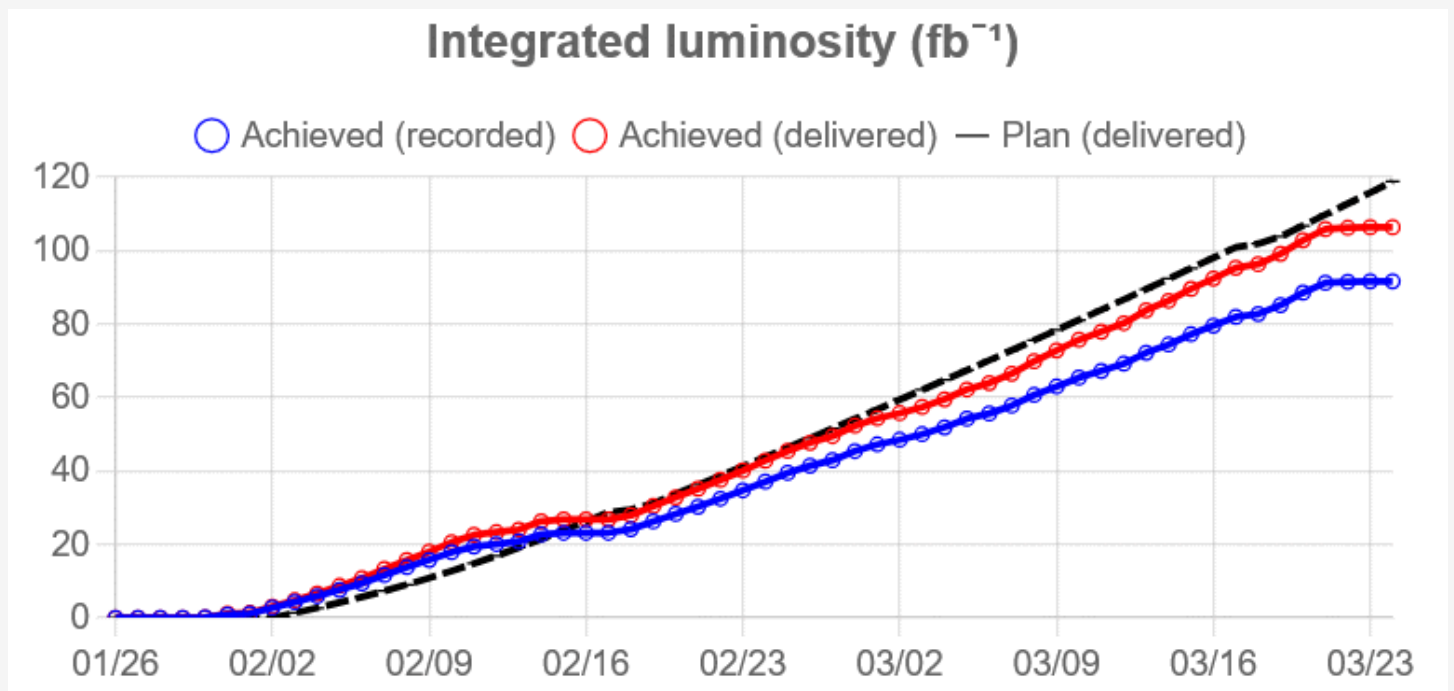
BELLE II MONTHLY

February + March 2026 Edition



Your friendly monthly digest keeping the Belle II Community connected.

The 2026 run is underway thanks to the combined efforts of the accelerator team, shifters, and collaborators.



Belle II Thesis Award

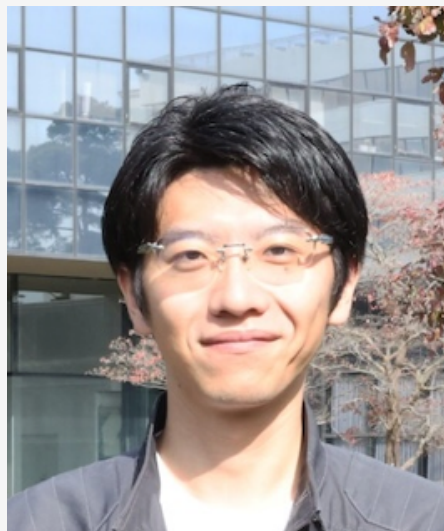
This year, we had two very deserving winners selected for the Belle II Thesis Awards:

Technical Belle II Thesis Award



goes to **Christopher Ketter** for exceptional firmware and hardware contributions to the Belle II KLM readout.

Physics Belle II Thesis Award



goes to **Yuki Sue** for precise ISR measurement of $e^+e^- \rightarrow 3\pi$ cross section, a critical input for $(g-2)_\mu$ predictions.

The award ceremony and celebration will be held at the Vienna B2GM.

Nominations for the 2026 Belle II Thesis Awards will open in **May of 2026**, for theses published between May 2025 and April 2026.

State of the Experiment

Belle II and SuperKEKB continued successful operation over the past two weeks, with strong machine and detector performance and an important new milestone in luminosity delivery.

A new record peak luminosity at $5.244 \times 10^{34} \text{ cm}^{-2}\text{s}^{-1}$ was achieved with Belle II recording data on March 19. And a particular highlight was reached on March 20, when Belle II and

SuperKEKB jointly set a new record in both delivered and recorded luminosity over a 24-hour period:

- Delivered luminosity (March 20, 00:00 – March 21, 00:00): 3.37/fb
- Recorded luminosity (March 20, 00:00 – March 21, 00:00): 3.70/fb

This achievement was made possible by very stable running conditions at beam currents of 1503 mA in the LER and 1120 mA in the HER, with instantaneous luminosity of about $4.5 \times 10^{34} \text{ cm}^{-2} \text{ s}^{-1}$. Belle II reached a data-taking efficiency of $>90\%$, underlining the strong overall performance of the detector and operations teams.

More broadly, SuperKEKB maintained luminosities above $4 \times 10^{34} \text{ cm}^{-2} \text{ s}^{-1}$ in the last weeks, while Belle II detector subsystems continued to operate stably. Machine optimization efforts, including optics corrections, collimator tuning, and improvements to vacuum conditions, initially reduced background levels. At the same time, several QCS quenches and subsequent optics adjustments temporarily led to increased storage and injection backgrounds, which are being carefully studied by the accelerator and detector experts.

All Belle II subdetectors remained operational overall, with only minor issues related to electronics, firmware, and recovery procedures after beam aborts. These were addressed promptly, and several improvements to monitoring, automation, and recovery tools were introduced in the process.

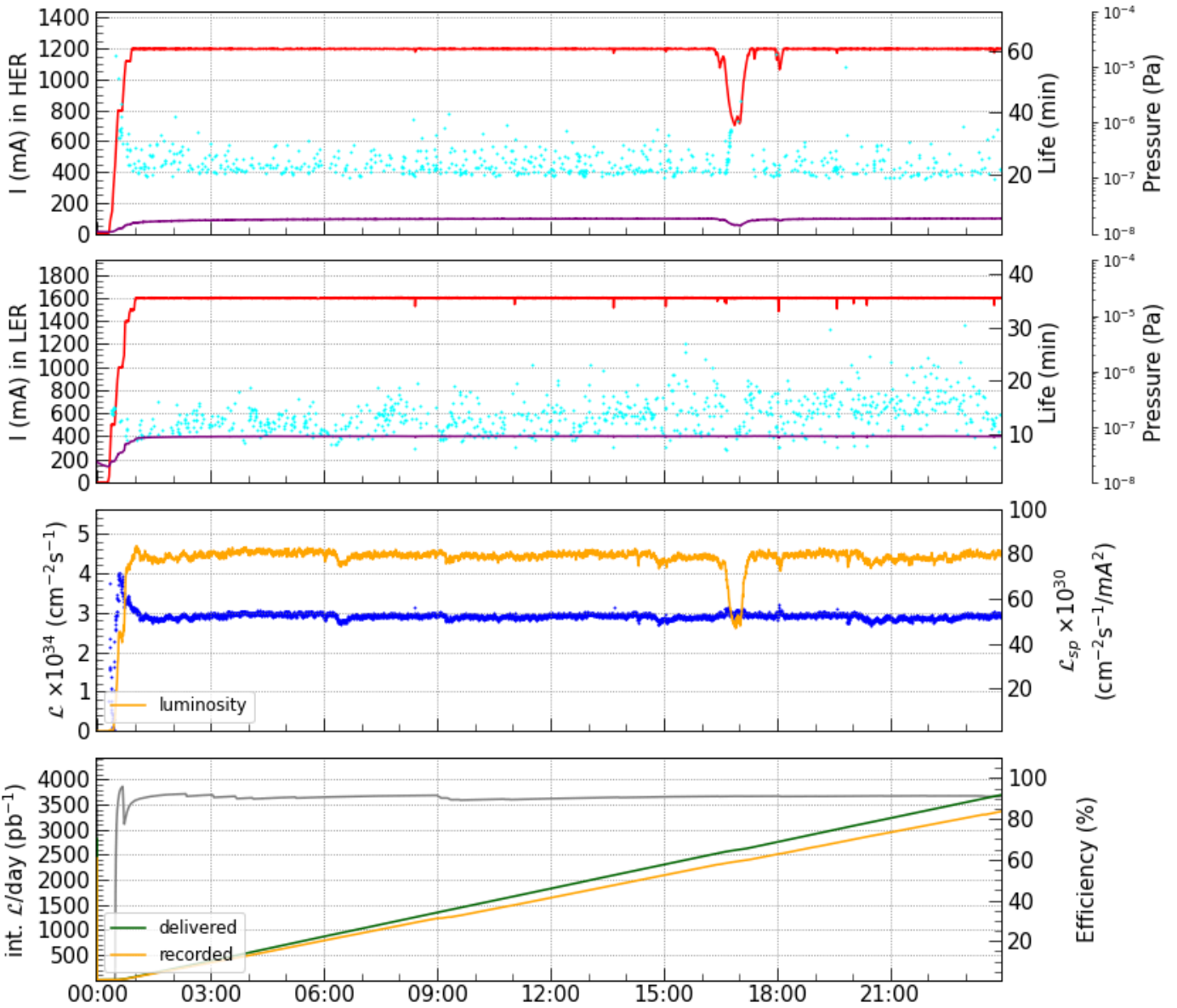
Calibration and data processing also continue to progress well. Prompt calibration of the current data-taking period is nearing completion, and preparations for the next calibration cycle are already underway to ensure seamless continuation. Computing and data distribution to the grid remain robust, with typical transfer times of about one to two hours after the end of a run.

Overall, the past two weeks have been marked by excellent operational performance, a new luminosity record, and continued progress in detector operation, calibration, and computing. Many thanks to everyone across Belle II and SuperKEKB whose efforts made this possible.

03/19 23:57:07 - 03/20 23:57:07, 2026 JST

\mathcal{L}_{peak} $4.705 \times 10^{34} \text{ cm}^{-2}\text{s}^{-1}$ @ 01:01:54 03/20
int. \mathcal{L}/day 3367 / 3698 pb^{-1}

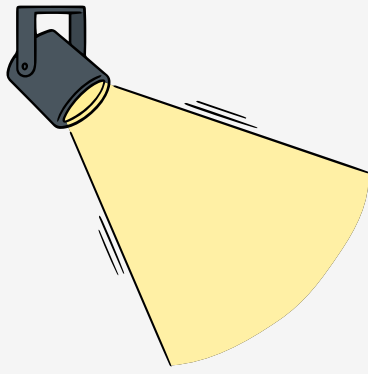
HER I_{peak} 1200 mA n_b 2249 β_x^*/β_y^* 60 / 1 mm
LER I_{peak} 1603 mA n_b 2249 β_x^*/β_y^* 60 / 1 mm



2026/03/20

HER : Physics Run

LER : Physics Run



Recent Physics Highlights

- Paper #66, "Improved measurement of Born cross sections for $e^+e^- \rightarrow \pi^+\pi^-\pi^0 \chi_{bJ}$ and $\Omega \chi_{bJ}$ ($J = 0, 1, 2$) at Belle and Belle II" has been accepted for publication in JHEP
 - Paper #89 "Search for $e^+e^- \rightarrow \gamma\chi_{bJ}$ ($J = 0, 1, 2$) near $\sqrt{s} = 10.746$ GeV at Belle II" has been accepted for publication in Phys. Rev. D.
 - Paper #91, "Measurement of the time-integrated CP asymmetry in $D^0 \rightarrow \pi^+\pi^-\pi^0$ decays at Belle II", has been accepted for publication in Phys. Rev. D.
 - Paper #94 "Study of $e^+e^- \rightarrow h^+h^-J/\Psi$ ($h=\pi, K, p$) via initial-state radiation at Belle II" is now available on arXiv (<https://arxiv.org/abs/2602.13569>) and has been submitted to PRD as a regular article.
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July B2GM and Belle II & Theory Workshop in Vienna – Registration now open

The next Belle II General Meeting (B2GM) will be held from **July 6-10, 2026 in Vienna, Austria**, hosted at the Freihaus building of TU Wien.

Preparations are underway, and while the scientific agenda is still being finalized, registration is now open via the official Indico page. Participants can also find practical information on accommodation, dining options, and local transportation on the event website.

In addition to the main meeting, a "**Belle II & Theory Workshop 2026**" will take place in the preceding week (July 1–3, 2026), providing an opportunity to strengthen collaboration

between experimentalists and theorists. Registration for this satellite workshop is already available.

The Belle II collaboration looks forward to welcoming participants to Vienna for a productive and engaging week of discussions.

Please register here:

54th BELLE II
General Meeting

6th - 10th July 2026
Freihaus, TU Wien
Wiedner Hauptstr. 8-10, 1040 Wien, Austria

Follow the owl

More infos + registration: 
<https://indico.belle2.org/event/17880/>

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Workshop
Belle II & Theory

1st - 3rd July 2026
Vienna University of Technology, Austria

The Belle II & Theory workshop intends to bring together members of the Belle II experiment with the theory community at large. The program is organized jointly and covers all aspects of the Belle II physics reach. Belle II will soon enter its inverse attobarn era, pushing beyond the sensitivities of the predecessor e⁺e⁻ B factory experiments.

Organisation: LOC, Soeren Prell, Florian Bernlochner

More infos and registration: 
<https://indico.belle2.org/event/17871/>

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Belle II Computing, Data Production, and Software Workshop – Strasbourg

Belle II members working on computing, data production, and software development have been meeting in Strasbourg. The workshop brought together experts and users to discuss the

current status and future developments of the Belle II computing and software ecosystem. Stay tuned about a full report in the next newsletter.

The indico page is available at <https://indico.belle2.org/event/17759/>.

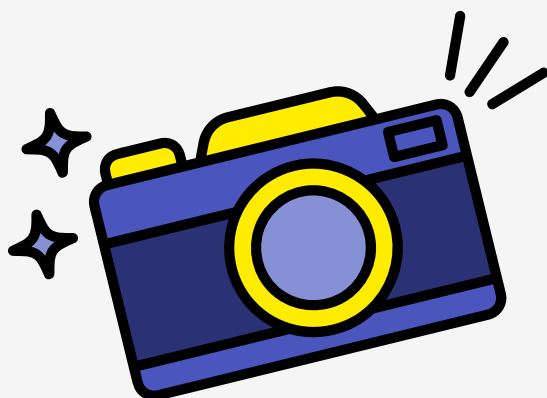
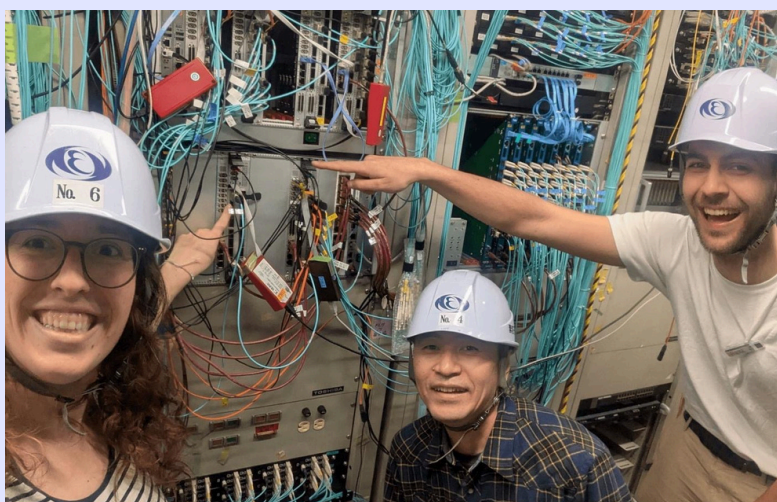


Photo of the Month



The core team for the GNN-based L1 Trigger. From Left to Right: Isabel Haide, Yuji Unno, and Marc Neu

The Belle II level 1 trigger relies on algorithms implemented on FPGAs to take decisions within a few microseconds. Since late 2024, the ECL trigger team has operated a new Graph Neural Network-based trigger, the GNN-ETM. The GNN-ETM is currently evaluated in parallel

with the standard trigger without actively contributing to the trigger decision. Its operation marks the first time that a GNN is used in real-time on collision data in high energy physics experiments. The algorithm, its FPGA implementation, and its performance on collision data have been submitted to JINST and are available on arXiv (<https://arxiv.org/abs/2602.15118>). The project is a joint effort of the Karlsruhe Institute of Technology (KIT) and KEK, and prepares the Belle II ECL trigger for higher beam background conditions. (Courtesy of Torben Ferber)

Upcoming Events

Belle II Events:

- **DESY Colloquium of Kodai Matsuoka** “The SuperKEKB/Belle II project: Pioneering the luminosity frontier to explore physics beyond the TeV scale”
https://physikseminar.desy.de/hamburg/colloquia_in_2026/31_march_2026/ (Zoom link is available for those who wish to participate remotely)
- **54th Belle II General Meeting** in Austria (registration open – separate registration for Carbon Footprint tracking – watch for details soon)

Conferences:

- Workshop on **Exotic Hadron Spectroscopy 2026** in Cambridge, UK | Latest results from Belle II on exotic hadron spectroscopy from Umberto Tamponi
- **KEK IPNS Seminar 2026** at KEK | First measurement of time-dependent CP violation in the $B^0 \rightarrow \pi^0 \pi^0$ decay by Kieran Amos
- Workshop on **Standard Model at the LHC (SM@LHC 2026)** in Torino, Italy | Belle II: Latest developments on semileptonic (and rare) B decays | Youngjoon Kwon
- **Challenges in Semileptonic B Decays 2026 (BSL26)** in Bad Honnef, Germany | Multiple talks from Nada Gharbi, Christoph Schwanda, Munira Khan, Tommy Martinov, Tia Crane, Ilias Tsaklidis, Lu Cao, Michele Mantovano
- **Beyond the Flavour Anomalies Workshop 2026** in Santiago de Compostela, Spain | Belle II searches for $b \rightarrow s \tau \tau$ decays by Stefano Moneta
- **Quantum Observables for Collider Physics 2026 (QOCP26)** at CERN | Measurements of entanglement, Bell inequality and decoherence in Belle II by Sagar Hazra



Call for contributions!

Have news, papers, or photos to share? Email zjl@hiroshima-u.ac.jp for the next Belle II Monthly.

