Test Beam Facilities Database & Website (TBDB)

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Outline

- Irradiation Facilities Online Database
- Test Beam Database
- Test Beam Database for Facility Coordinators
- Current Test Beam Facilities in TBDB
- Summary
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Irradiation Facilities Online Database

A DB platform for searching irradiation facilities at CERN and worldwide and for coordinators to insert/update their data:

- 217 irradiation facilities
- 4500 visits from around the world since first launched

http://cern.ch/irradiation-facilities
### Experiments and projects

- **CERN experiments (Grey Book)**
- **BASE**
- **CAST**
- **CERN Neutrino Platform**
- **CLIC**
- **CLOUD**
- **CNGS**
- **CMS**
- **COMPASS**
- **DIRAC**
- **ELENA**
- **FASER**
- **FCC**
- **GBAR**
- **HI-LHC**
- **Irradiation Facilities**
- **ISOLDE**
- **LHCb**
- **LHCf**
- **LIU project**
- **MoEDAL**

[Image of CERN Directory page highlighting Irradiation Facilities]
TBDB Development Workflow

After the irradiation facilities DB success, a request from the BTTB community for an equivalent and enhanced platform tailored to the Test Beam facilities came.

The workflow steps included:

• Reviewing irradiation facilities DB and detecting possible improvements
• Interviewing facility coordinators and test beam users to understand their requirements and detecting key information necessary for test beams
• Researching which are the currently existing test beam facilities
• Developing the new platform
• Testing and getting feedback
• Handing it over to the TBDB coordinator: Henric Wilkens
• Contacting facility coordinators to validate their data
Test Beam Facilities Key Information

According to the interviews, some of the key information needed were:
• Particle type
• Energy/Momentum
• Spill rate
• Particle polarity
• Intensity
• Beam size
• …

Additional information:
• Availability / Schedule
• Available supporting infrastructure (read-out electronics, telescopes, etc.)
• Safety
• …
The website is centrally hosted on a CERN web server.

CERN MySQL Database on Demand

Back end (PHP)

Front end

Cron jobs on openstack VM for annual reminders to facility coordinators

CERN SSO Authentication
Test Beam Facilities Database

A unified database and platform for test beam facilities at CERN, in EU and worldwide:

- 16 facilities
- 27 beamlines

http://www.cern.ch/tbdb
CERN Test Beam Facilities

A dedicated page for the CERN Test Beam facilities.
(CERN PS and SPS operational again from 2nd quarter of 2021)
Worldwide Test Beam Facilities

A map including all the Test Beam facilities
Test Beam Facilities Database

A unified table showing the test beam facilities and their beamlines.

<table>
<thead>
<tr>
<th>Facility Name</th>
<th>Institute Name</th>
<th>Beamline Name</th>
<th>Country</th>
<th>Particle Type</th>
<th>Particle Energy</th>
<th>Coordinator</th>
</tr>
</thead>
<tbody>
<tr>
<td>CERN SPS</td>
<td>CERN</td>
<td>H2</td>
<td>Switzerland</td>
<td>electrons, protons, hadrons, muons, ions</td>
<td>10-400 GeV/c</td>
<td><a href="mailto:sps.coordinator@cern.ch">sps.coordinator@cern.ch</a></td>
</tr>
<tr>
<td>CERN SPS</td>
<td>CERN</td>
<td>H8</td>
<td>Switzerland</td>
<td>primary protons, hadrons, muons, electrons, ions</td>
<td>10-400 GeV/c</td>
<td><a href="mailto:sps.coordinator@cern.ch">sps.coordinator@cern.ch</a></td>
</tr>
<tr>
<td>pE1, pIM1</td>
<td>Paul Scherrer Institute (PSI)</td>
<td>Beamlne</td>
<td>Switzerland</td>
<td>pions, muons, positrons, protons</td>
<td>50-450 MeV/c</td>
<td><a href="mailto:davide.reggiani@psi.ch">davide.reggiani@psi.ch</a></td>
</tr>
<tr>
<td>PIF</td>
<td>Paul Scherrer Institute (PSI)</td>
<td>Beamlne</td>
<td>Switzerland</td>
<td>protons</td>
<td>5 - 230 MeV/c</td>
<td><a href="mailto:wojtek.hajdas@psi.ch">wojtek.hajdas@psi.ch</a></td>
</tr>
</tbody>
</table>
Test Beam Facilities Information

Details about:
- Facility coordinator contact information
- Institute/Organisation Details
- Source Data
- Safety
- Accessibility
Beamline Information

Details about:
- Beamline Characteristics
- Infrastructure
TBDB for Facility Coordinators

Log in to the CERN SSO Authentication with the e-mail associated as the contact e-mail of the test-beam facility.
TBDB for Facility Coordinators

- Facility information to be entered
- Data will be under approval by the test beam facility coordinator and not public until then
TBDB for Facility Coordinators

Once Test Beam facility approved, coordinators can add beamline data
Editing Data for Facility Coordinators

Data can be updated any time. Coordinators can request to delete data.
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CERN Test Beam Facilities

**SPS**
4 beamlines
p, e⁻, h, μ, ions
(10 - 400 GeV/c)

**PS**
2 beamlines
e⁻, h, μ
(0.5 - 10 GeV/c)

**CLEAR**
1 beamline
e⁻ (50 - 250 MeV/c)
Test Beam Facilities in Europe

**DESY**
- 3 beamlines
- $e^+$, $e^-$ (1 - 6 GeV/c)
- $e^-$ (6.3 GeV/c)

**ELSA**
- 1 beamline
- $e^-$ (1.2 - 3.2 GeV/c)

**MAMI**
- 3 beamlines
- $e^-$, $\gamma$ (< 1.6 GeV/c)

**PSI**
- **piE1, piM1**
- $\pi^+$, $\mu^+$, $e$, $p$
- (50 - 450 MeV/c)

**PIF**
- $p$ (5 - 230 MeV/c)

**BTF**
- **DAFNE**
- $e^+$, $e^-$
- (25 - 750 MeV/c)
Test Beam Facilities Worldwide

**IHEP Protvino**
- 5 beamlines
- p (70 GeV/c), p, K, π, μ⁺, e⁻ (1 - 45 GeV/c), C¹² (6 - 300 GeV/c)

**IHEP Beijing**
- 2 beamlines
- e⁻ (0.1 - 2.5 GeV/c), p, π (0.4 - 1.2 GeV/c)

**FERMILAB/FTBF**
- 2 beamlines
- p (120 GeV/c), e⁻, h, μ⁺ (1 - 66 GeV/c), h (200 - 500 MeV/c)

**ELPH**
- 2 beamlines
- photons (0.7 - 1.2 GeV/c), e⁺, e⁻ (0.1 - 1.0 GeV/c)

**SPRING-8**
- Compton Facility
- 2 beamlines
- photons (1.3 - 2.9 GeV/c)
- e⁺, e⁻ (0.4 - 2.9 GeV/c)

**RCNP**
- 7 beamlines
- p (~400 MeV), heavy ions (~100 AMeV), white n (max 400 MeV)
- μ⁺ (24 - 110 MeV/c)

**SLAC**
- Currently no beam
- e (1 - 15 GeV/c)
Summary

- Irradiation Facilities DB well-established and used
- New Test Beam DB is now online with the most currently well-known facilities
- Annual notifications will be sent to facility coordinators to keep the data up-to-date

Visit TBDB and find your next Test Beam facility or add a new one!

http://www.cern.ch/tbdb

test-beam-facilities-admin@cern.ch