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The Development of TPS Light Source in Taiwan: Phase-II Commissioning and Future Planning

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The construction of Taiwan Photon Source (TPS) started in 2010 and the first light was emitted from the beam port at the end of 2014. It was a swift record in commissioning two new rings, which took only 3 weeks to have the 150 MeV electron beam ramp to 3 GeV in the booster and store 5 mA beam in the storage ring. The commission of the TPS and fine-tuning the machine were carried out in the first quarter of 2015 and the stored beam has reached 100 mA. The measured key parameters are consistent and matched well with the designed targets. Especially, the emittance value has reached the design goal. In the 2nd and 3rd quarters of 2015, the TPS was shut down to install superconducting RF cavities, insertion devices (IDs), and beamlines. A new double mini-betay lattice is available for commission with the new 2 cavities and 10 IDs. With three sets of double mini-betay IDs installed, the TPS is expected to eventually reach a 500 mA stored beam current. The average brightness produced from the IDs will have a great opportunity to place the TPS at the crest of the synchrotron light community around the world.

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