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## Status of the Time-of-Flight Direct-Geometry Spectrometer 4SEASONS

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4SEASONS, also called SIKI, is a time-of-flight direct geometry spectrometer in the Materials and Life Science Experimental Facility (MLF) at the Japan Proton Accelerator Research Complex (J-PARC). It is designed for measurements of dynamics in the  $10^0$ - $10^2$  meV energy range [1]. The momentum-energy region for this spectrometer occupies the middle of the momentum-energy space covered by all MLF neutron spectrometers [2]. Although the instrument has been conducting user programs for about 10 years, the upgrade of the instrument is continuously progressed. Examples of the recent upgrades are: Replacement of the most end part of the neutron guide tube, increase in the number of detectors, update to use a superconducting magnet, and replacement of the T0 chopper. In the presentation, we will show the specifications of the instrument, usage statistics, and recent examples of scientific outputs and instrument upgrades.

### References

- [1] R. Kajimoto et al., J. Phys. Soc. Jpn. **80**, SB025 (2011).
- [2] H. Seto et al., BBA Gen. Subj. **1861**, 3651 (2017); R. Kajimoto et al., Physica B **562**, 148 (2019).

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