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## DNS: a versatile polarized neutron instrument at the forefront of quantum materials research

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With its compact design, large double-focus monochromator and wide-angle polarization analysis, DNS is optimized as a high intensity cold-neutron polarized instrument. Major instrument upgrades, including a new-generation Fe/Si supermirror based focusing polarizing bender [1], and a 300 Hz disc chopper system, have been accomplished recently. This has opened up possibilities to combine polarized neutrons with time-of-flight spectroscopy for the studies of exotic magnetic order and excitations in quantum materials, such as magnetic Dirac and Weyl semimetals, quantum spin liquid, quantum spin ice and Kitaev quantum magnets. In this poster, an overview about the recent instrument upgrades and some selected examples on our recent studies of quantum materials [2-5] will be given.

- [1] K. Nemkovski, et al., J. Phys. Conf. **862**, 012018 (2017).
- [2] S. Gao, et al., Nat. Phys. **13**, 157 (2017).
- [3] V. Pecanha-Antonio, et al., Phys. Rev. B **96**, 214415 (2017).
- [4] V. Pecanha-Antonio, et al., Phys. Rev. B **99**, 134415 (2019).
- [5] Fengfeng Zhu, Xiao Wang, et al., (unpublished).

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