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Prospects in neutron transverse spin study with polarized ^3He at 12 GeV Jefferson Laboratory

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Due to the unique ground state spin structure of the ^3He nucleus, polarized ^3He nuclear targets have been used widely in experiments ranging from measurements of the neutron electric and magnetic form factors to the study of the neutron spin structure. In this talk, I will discuss the recently completed neutron transversity experiment in Hall A at Jefferson Laboratory using a vertically polarized ^3He target. This is the first time that a polarized ^3He target has been used in probing the neutron transverse spin structure. I will focus in my talk the future prospects of neutron transverse spin study at 12-GeV Jefferson Laboratory after the energy upgrade. The work is supported by a U.S. Department of Energy grant DE-FG02-03ER41231.