Dynamical properties of spatially anisotropic frustrated Heisenberg models in a magnetic field MASANORI KOHNO, Computational Materials Science Center, NIMS, LEON BALENTS, Department of Physics, UCSB, OLEG. A. STARYKH, Department of Physics, University of Utah — We investigate spectral features of spatially anisotropic spin-1/2 frustrated antiferromagnets in a magnetic field in terms of fractional excitations. Restricting the Hilbert space to that spanned by the eigenstates of the Heisenberg chain [1], we calculate dynamical structure factor $S(\boldsymbol{k},\omega)$ in the two-dimensional momentum space. We obtain sharp peaks and broad continuum depending on the momentum. We interpret the sharp peaks as signatures of bound states of psinons and antipsinons, fractional excitations in a magnetic field. We compare these spectral features with available experimental results on Cs_2CuCl_4 [2], and make detailed predictions on momentum- and field-dependence of peak structures and line shapes of $S(\boldsymbol{k},\omega)$ for Cs_2CuCl_4 in a magnetic field. [1] M. Kohno, O. A. Starykh, and L. Balents, Nature Phys. **3**, 790 (2007). [2] R. Coldea, *et al.*, Phys. Rev. Lett. **79**, 151 (1997).

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