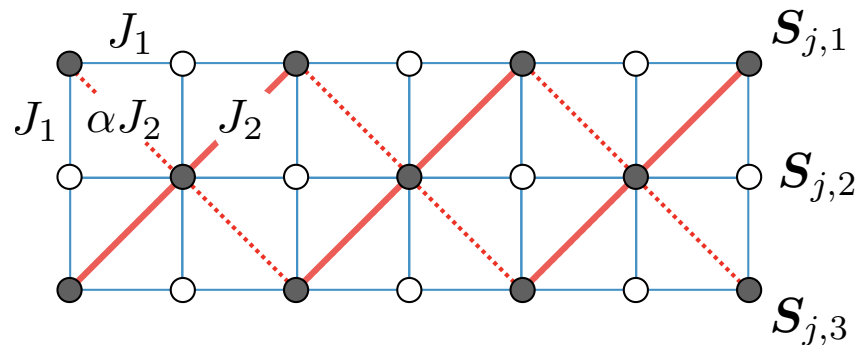
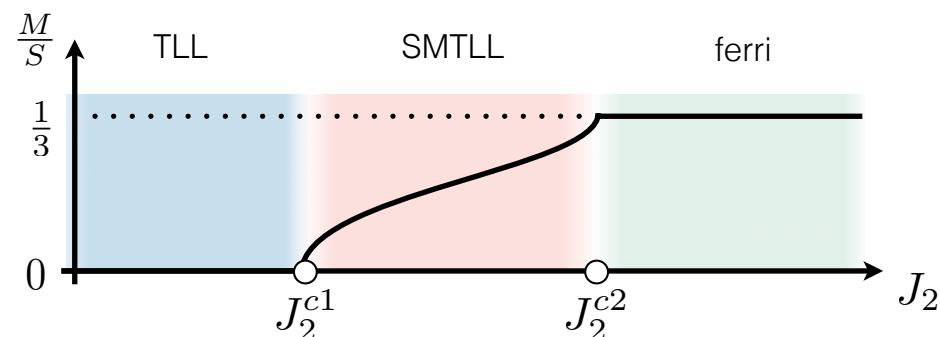


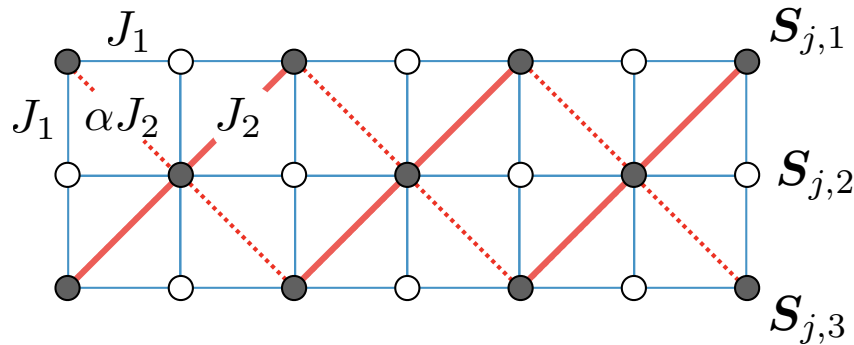
Union Jack lattice



frustrated antiferromagnet

spontaneous incommensurate
ferromagnetic orderTomonaga-Luttinger liquid structure
compatible with the spontaneous magnetization

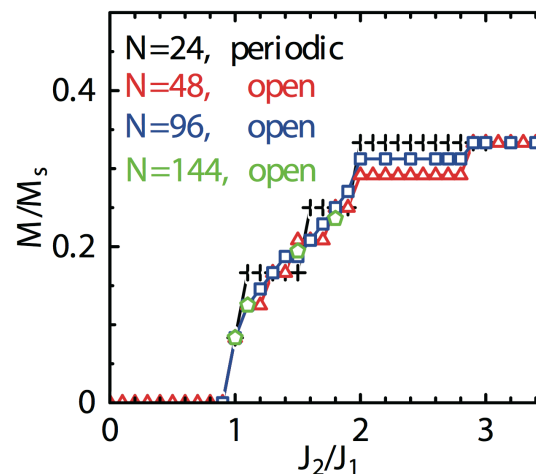
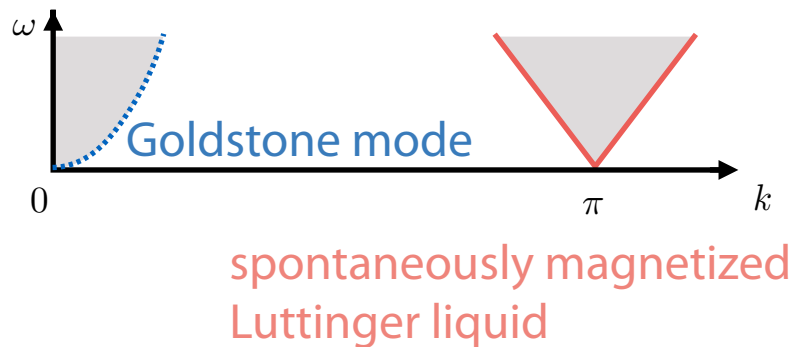
Union Jack lattice



frustrated antiferromagnet
 ↓
 spontaneous incommensurate
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Tomonaga-Luttinger liquid structure
 compatible with the spontaneous magnetization

Dynamical structure factor $S^{xx}(q, \omega)$



T. Shimokawa and H. Nakano,
 J. Phys. Korean. Soc. (2013)