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Frustrated 1D Spin-S chain Below Saturation Magnetization<sup>1</sup> TEIMURAZ VEKUA<sup>2</sup>, Leibniz University of Hannover, ALEXEI KOLEZHUK, University of Kiev, FABIAN HEIDRICH-MEISNER, University of Munchen, SE-BASTIAN GRESCHNER, Leibniz University of Hannover, MARCELO ARLEGO, GERARDO ROSSINI, University of La Plata, ANDREAS HONECKER, University of Goettingen — Ground states of frustrated spin-S chains in strong magnetic field in the immediate vicinity of saturation are mapped out. For ferromagnetic nearest-neighbor and frustrating antiferromagnetic next-nearest-neighbor exchange interactions generic feature is metamagnetic behavior under the influence of an external magnetic field for small S, in the form of a first-order transition to the fully polarized state. The magnetization jump increases gradually starting from an Sdependent critical value of exchange couplings and takes a maximum in the vicinity of a ferromagnetic Lifshitz point. The metamagnetism results from resonances in the dilute magnon gas caused by an interplay between quantum fluctuations and frustration. For antiferromagnetic nearest neighbour interactions generic feature is emergence of two-component Luttinger liquid phase and series of phase transitions between that phase and chiral phase.

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