A test of the bosonic spinon hypothesis for the triangular antiferromagnet

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We show that the anomalous excitation spectrum of the spin-1/2 triangular Heisenberg model, recently found with series expansion by Zheng *et al.* [Phys. Rev. Lett. **96**, 057201 (2006)] , can be naturally interpreted in terms of spinon excitations using a Schwinger boson mean field theory. In particular, we find a qualitative and quantitative agreement of the strong renormalization of the high energy part of the spectrum with respect to spin wave results along with the appearance of roton like minima at the midpoints of faces of the hexagonal Brillouin zone. By looking at the dominant part of low energy peaks of the dynamical structure factor the roton like minima can be traced back to the crossing of the spinon branches shifted by $\pm\frac{\mathbf{Q}}{2}$, where $\mathbf{Q} = (4\pi/3, 0)$ is the magnetic wave vector of the 120° Néel order. We also find that near the location of the roton minima the contribution of the two spinon continuum to the static structure factor is about 40% of the total weight. The implications of our findings are contrasted with recent calculations within the context of $1/s$ spin wave expansions.