The classical limit for the Holstein-Primakoff representation in the soliton theory of Heisenberg chains

1989 J. Phys.: Condens. Matter 1 3997

(http://iopscience.iop.org/0953-8984/1/25/512)

J. Phys.: Condens. Matter 1 (1989) 3997. Printed in the UK

CORRIGENDUM

The classical limit for the Holstein–Primakoff representation in the soliton theory of Heisenberg chains by Mario J Škrinjar, Darko V Kapor and Stanoje D Stojanović (*J. Phys.: Condens. Matter* 1989 **1** 725–732)

Expressions (13), (15), (16), (31) and (33) should be corrected to read as follows:

$$\begin{aligned} \mathrm{i}S_c\tilde{\alpha}_t = {} & h_2\tilde{\alpha} - 2\tau\tilde{J}|\tilde{\alpha}|^2\tilde{\alpha} - \tilde{J}a^2\tilde{\alpha}_{xx} - \tfrac{1}{2}\tilde{J}a^2(2\tilde{\alpha}|\tilde{\alpha}_x|^2 + \tilde{\alpha}^2\tilde{\alpha}^*_{xx} - \tilde{\alpha}^*\tilde{\alpha}^2_x) \\ & - \tfrac{1}{16}\tilde{J}^2\{\tilde{\alpha}(|\tilde{\alpha}|^2_x)^2/(1 - \tfrac{1}{2}|\tilde{\alpha}|^2)^2 + [2|\tilde{\alpha}|^2\tilde{\alpha}/(1 - \tfrac{1}{2}|\tilde{\alpha}|^2)^2]|\tilde{\alpha}|^2_{xx}\} \\ & - \tau\tilde{J}a^2(2\tilde{\alpha}|\tilde{\alpha}_x|^2 + \tilde{\alpha}^2\tilde{\alpha}^*_{xx} + |\tilde{\alpha}|^2\tilde{\alpha}_{xx}). \end{aligned} \tag{13}$$

$$S_cA_t = \tilde{J}a^2(-2A_x\varphi_x - A\varphi_{xx} + 2A^2A_x\varphi_x + \tfrac{1}{2}A^3\varphi_{xx}). \tag{15}$$

$$\begin{aligned} (-S_c\varphi_t - S_c\Omega)A = {} & h_2A - 2\tau\tilde{J}A^3 - \tilde{J}a^2A_{xx} + \tilde{J}a^2A\varphi^2_x - \tilde{J}a^2A^3\varphi^2_x \\ & - \tfrac{1}{2}\tilde{J}a^2(1 + 4\tau)(AA^2_x + A^2A_{xx}) - \tfrac{1}{8}\tilde{J}a^2[(4A^3A^2_x + 2A^4A_{xx})/(1 - \tfrac{1}{2}A^2) \\ & + A^5A^2_x/(1 - \tfrac{1}{2}A^2)^2]. \end{aligned} \tag{16}$$

$$E = \mu Mf + (16S_c\tilde{J}/M)\sin(Pa/4S_c) \tag{31}$$

$$\begin{aligned} A^2_\xi = {} & [(\gamma_0 + 2\tau/a^2 - V^2/4)A^2 - (\tfrac{1}{2}\gamma_0 + 2\tau/a^2)A^4 \\ & + (\tau/2a^2)A^6][1 + 2\tau A^2(1 - \tfrac{1}{2}A^2)]^{-1} \\ \simeq {} & (\gamma_0 + 2\tau/a^2 - V^2/4)A^2 - [(\tfrac{1}{2}\gamma_0 + 2\tau/a^2)A^4 \\ & - (\tau/2a^2)A^6][1 + \mathrm{O}(\tau)] + \mathrm{O}(\tau^2A^8) \\ \simeq {} & (\gamma_0 + 2\tau/a^2 - V^2/4)A^2 - (\tfrac{1}{2}\gamma_0 + 2\tau/a^2)A^4 + (\tau/2a^2)A^6. \end{aligned} \tag{33}$$