

目 次

はじめに		1
解 説		田崎晴明, 勝又紘一 3
収 錄 論 文	 41
(1) F. D. M. Haldane: Continuum Dynamics of the 1-D Heisenberg Antiferromagnet: Identification with the O(3) Nonlinear Sigma Model Phys. Lett. A93 (1983) 464-468		43
(2) F. D. M. Haldane: Nonlinear Field Theory of Large-Spin Heisenberg Antiferromagnets: Semiclassically Quantized Solitons of the One-Dimensional Easy-Axis Néel State Phys. Rev. Lett. 50 (1983) 1153-1156		48
(3) M. P. Nightingale and H. W. J. Blöte: Gap of the Linear Spin-1 Heisenberg Antiferromagnet: A Monte Carlo Calculation Phys. Rev. B33 (1986) 659-661		52
(4) I. Affleck, T. Kennedy, E. H. Lieb and H. Tasaki: Rigorous Results on Valence-Bond Ground States in Antiferromagnets Phys. Rev. Lett. 59 (1987) 799-802		55
(5) J. P. Renard, M. Verdaguer, L. P. Regnault, W. A. C. Erkelens, J. Rossat-Mignod and W. G. Stirling: Presumption for a Quantum Energy Gap in the Quasi-One-Dimensional $S=1$ Heisenberg Antiferromagnet $\text{Ni}(\text{C}_2\text{H}_5\text{N}_2)_2\text{NO}_2(\text{ClO}_4)$ Europhys. Lett. 3 (1987) 945-952		59
(6) M. Takahashi: Monte Carlo Calculation of Elementary Excitation of Spin Chains Phys. Rev. Lett. 62 (1989) 2313-2316		67
(7) K. Katsumata, H. Hori, T. Takeuchi, M. Date, A. Yamagishi and J. P. Renard: Magnetization Process of an $S=1$ Linear-Chain Heisenberg Antiferromagnet Phys. Rev. Lett. 63 (1989) 86-88		71

- (8) M. Date and K. Kindo:
 Elementary Excitation in the Haldane State
 Phys. Rev. Lett. **65** (1990) 1659–1662 74
- (9) T. Kennedy:
 Exact Diagonalisations of Open Spin-1 Chains
 J. Phys. Cond. Matt. **2** (1990) 5737–5745 78
- (10) M. Hagiwara, K. Katsumata, I. Affleck, B. I. Halperin and J. P. Renard:
 Observation of $S=1/2$ Degrees of Freedom in an $S=1$ Linear-Chain Heisenberg
 Antiferromagnet
 Phys. Rev. Lett. **65** (1990) 3181–3184 87
- (11) W. Lu, J. Tuchendler, M. von Ortenberg and J. P. Renard:
 Direct Observation of the Haldane Gap in NENP by Far-Infrared Spectroscopy in
 High Magnetic Fields
 Phys. Rev. Lett. **67** (1991) 3716–3719 91
- (12) T. Kennedy and H. Tasaki:
 Hidden $Z_2 \times Z_2$ Symmetry Breaking in Haldane Gap Antiferromagnets
 Phys. Rev. **B 45** (1992) 304–307 95
- (13) N. Fujiwara, T. Goto, S. Maegawa and T. Kohmoto:
 Spin Fluctuation and Static Properties of the Local Moments in the Haldane-Gap System
 $\text{Ni}(\text{C}_2\text{H}_8\text{N}_2)_2\text{NO}_2(\text{ClO}_4)$ Studied by ^1H NMR
 Phys. Rev. **B 47** (1993) 11860–11869 99
- (14) L. P. Regnault, I. Zaliznyak, J. P. Renard and C. Vettier:
 Inelastic-Neutron-Scattering Study of the Spin Dynamics in the Haldane-Gap System
 $\text{Ni}(\text{C}_2\text{H}_8\text{N}_2)_2\text{NO}_2\text{ClO}_4$
 Phys. Rev. **B 50** (1994) 9174–9187 109
- 文献リスト 123

