

REFERENCES

- Buschow, K.H.J., Coehoorn, R., de Mooij, D.B., de Waard, K., and Jacob, T.H. Structure and magnetic properties of $R_2Fe_{17}N_x$ compounds. J. Magn. Magn. Mater. 92 (1990): L35-L38.
- Christman, J.R. Fundamentals of solid state physics. New York: John Wiley and Sons. 1988.
- Coey, J.M.D., Lawler, J.F., Sun, H., and Allen, J.E.M. Nitrogenation of R_2Fe_{17} compounds: R=rare earth. J. Appl. Phys. 69 (1991): 3007-3010.
- _____ and Sun, H. Improved magnetic properties by treatment of iron-based rare earth intermetallic compounds in ammonia. J. Magn. Magn. Mater. 87 (1990): L251-L254.
- Ding, J., Street, R. and McCormick, P.G. Magnetic hardening of mechanically alloyed $Sm_2Fe_{17}N_x$. J. Magn. Magn. Mater. 115 (1992): 211-216.
- Duc, N.H., Hien, T.D., Givord, D., Franse, J.J.M., and de Boer, F.R. Exchange interaction in rare earth-transition metal compounds. J. Magn. Magn. Mater. 124 (1993): 305-311.
- Friedel, J. Transition metals. Electronic structure of the d-band. Its role in the crystalline and magnetic structure. In Ziman, J.M. (ed.), The physics of metals. 1. Electron. pp.340-408. Cambridge: Cambridge University Press, 1969.

- Gavigan, J.P., and Givord, D. Intrinsic and extrinsic properties of rare earth-transition compounds and permanent magnets. J. Magn. Magn. Mater. 84 (1990): 288-297.
- Gu, Z., and Lai, W. Calculated electronic and magnetic structures of the new ternary rare-earth-iron nitride $\text{Nd}_2\text{Fe}_{17}\text{N}_3$. J. Appl. Phys. 71 (1992): 3911-3916.
- Isnard, O., Miraglia, S., and Fruchart, D. High field magnetization measurements of $\text{Sm}_2\text{Fe}_{17}$, $\text{Sm}_2\text{Fe}_{17}\text{N}_3$, $\text{Sm}_2\text{Fe}_{17}\text{D}_5$, and $\text{Pr}_2\text{Fe}_{17}$, $\text{Pr}_2\text{Fe}_{17}\text{N}_3$. J. Appl. Phys. 75 (1994): 5988-5993.
- Katter, M., Wecker, J., Kuhrt, C., Schultz, L., and Grossinger, R. Magnetic properties and thermal stability of $\text{Sm}_2\text{Fe}_{17}\text{N}_x$ with intermediate nitrogen concentrations. J. Magn. Magn. Mater. 117 (1992): 419-427.
- Kittel, C. Introduction to solid state physics. New York: John Wiley and sons. 1986.
- Lui, Y., Dallimore, M.P., McCromick, P.G., and Alonso, T. High coercivity SmCo_5 synthesized by chemical reduction during mechanical alloying. J. Magn. Magn. Mater. 116 (1992): L320-L324.
- Madelung, O. Introduction to solid-state theory. translated by Taylor, B.C. Berlin: Springer-Verlag. 1978.
- Martin, D.H. Magnetism in solids. Massachusetts: The M.I.T. Press. 1967.
- McCaig, M., and Clegg, A.G. Permanent magnets in theory and practice. 2nd. ed. New York: John Wiley and Sons. 1987.
- Mukai, T., and Fujimoto, T. Kerr microscopy observation of nitrogenated $\text{Sm}_2\text{Fe}_{17}$ intermetallic compounds. J. Magn. Magn. Mater. 103 (1992): 165-173.
- Mulder, F.M., et al. ^{155}Gd Mossbauer effect and magnetic properties of $\text{Gd}_2\text{Co}_{17}\text{N}_x$. J. Magn. Magn. Mater. 117 (1992):413-418.

- Otani, Y., Hurley, D.P.F., Sun, H., and Coey, J.M.D. Magnetic properties of a new family of ternary rare-earth iron nitrides $R_2Fe_{17}N_{3-\delta}$. J. Appl. Phys. 69 (1991): 5584-5589.
- Parker, R.J. Advances in permanent magnetism. New York: John Wiley and Sons. 1990.
- Prayoonwech, C., and Tang, I.M. Spontaneous magnetization of an inverse spinel ferrite. J. Sci. Soc. in Thailand. 5 (1979): 131-144.
- Qiao, W.H., Wang, Q., Zhong, X.P., and Luo, H.L. Molecular field theory analysis of $R_2Fe_{17}C_x$ ($R=Sm,Er$) compounds. J. Magn. Magn. Mater. 110 (1992): 170-174.
- Ray, A.E., and Strnat, K.J. Easy direction of magnetization in ternary $R_2(Co,Fe)_{17}$ phases. IEEE Trans. Magn. 8 (1972): 516-518.
- Slater, J.C. The ferromagnetism of Nickel. Phys. Rev. 49 (1936): 537-545.
- Smart, J.S. Effective fields theories of magnetism. New York: W.B. Saunders. 1966.
- Suwanjandee, N. Magnetic properties of Sm_2Co_{17} and $Sm_2Co_{17}N_x$ in rhombohedral phase. Master's Thesis, Chulalongkorn University, 1995.
- Stoner, E.C. Collective electron ferromagnetism. Proc. Roy. Soc. (London). A165 (1938): 372-414.
- _____. Ferromagnetism. Rep. Progr. Phys. 11 (1946-1947): 43-112.
- Strnat, K. J. The hard magnetic properties of rare earth transition metal alloys. IEEE Trans. Magn. 8 (1972): 511-516.
- _____. and Stanat, R.M.W. Rare earth-cobalt permanent magnets. J. Magn. Magn. Mater. 100 (1991): 38-56.
- Sun, H., Otani, Y., and Coey, J.M.D. Gas phase carbonation of R_2Fe_{17} . J. Magn. Magn. Mater. 104-107 (1992): 1439-1440.

- Wecker, J., Katter, M. and Schultz, L. Mechanically alloyed Sm_2Co_5 materials J. Appl. Phys. 69 (1991): 6058-6060.
- Yang, C.J., Lee, W.Y., and Choi, S.D. Crystal structure and low temperature magnetic properties of melt-spun $\text{Sm}_2\text{Co}_7\text{B}_3$ compounds. J. Appl. Phys. 75 (1994): 6274-6276.
- Yang, Y., et al. Neutron diffraction study of ternary nitrides of the type $\text{R}_2\text{Fe}_{17}\text{N}_x$. J. Appl. Phys. 70 (1991): 6018-6020.
- Yoshi, H., et al. Nuclear magnetic resonance of ^{59}Gd in Gd_2Co_7 J. Magn. Magn. Mater. 104-107 (1992): 1449-1450.
- Zouganelis, G., Anagnostou, M., and Niarchos, D. Mossbauer and magnetic studies of the $\text{R}_2\text{Fe}_{17}\text{N}_x$ (R=Lu, Sm) intermetallic compounds. Solid State Communications. 77 (1991): 11-16.



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