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Ferromagnetism, superconductivity and quantum criticality in uranium intermetallics

Nguyen Thanh, H.

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Bibliography

- [1] G.R. Stewart, *Rev. Mod. Phys.* **56** (1984) 755.
- [2] Z. Fisk, H.R. Ott, T.M. Rice and J.L. Smith, *Nature* (London) **320** (1986) 124.
- [3] Z. Fisk, D.W. Hess, C.J. Pethick, D. Pines, J.L. Smith, J.D. Thompson and J.O. Willis, *Science* **239** (1988) 33.
- [4] A.C. Hewson, *The Kondo Problem to Heavy Fermions* (Cambridge University Press, New York, 1993).
- [5] L.D. Landau, *Sov. Phys. JETP* **8** (1959) 70.
- [6] G. Baym and C.J. Pethick, *Landau Fermi Liquid Theory* (John Wiley, New York, 1991).
- [7] P. Coleman, M.B. Maple, A.J. Millis (Eds.), Proceedings of the Institute for Theoretical Physics Conference on Non-Fermi Liquid Behaviour in Metals, Santa Barbara, 1996, in *J. Phys.: Condens. Matter* **8** (1996) 9675 ff.
- [8] G.R. Stewart, *Rev. Mod. Phys.* **73** (2001) 755.
- [9] H. v. Löhneysen, A. Rosch, M. Vojta and P. Wölfle, *Rev. Mod. Phys.* **79** (2007) 1015.
- [10] H. v. Löhneysen, *J. Magn. Magn. Mat.* **200** (1999) 532.
- [11] Q. Si, S. Rabello, K. Ingersent and J.L. Smith, *Nature* (London) **413** (2001) 804.
- [12] P. Coleman, C. Pépin, Q. Si and R. Ramazashvili, *J. Phys.: Condens. Matter* **13** (2001) R723.
- [13] C. Pfleiderer, G.J. McMullan, S.R. Julian and G.G. Lonzarich, *Phys. Rev. B* **55** (1997) 8330.
- [14] M. Uhlarz, C. Pfleiderer and S.M. Hayden, *Phys. Rev. Lett.* **93** (2004) 256404.
- [15] P.G. Niklowitz, F. Beckers, G.G. Lonzarich, G. Knebel, B. Salce, J. Thomasson, N. Bernhoeft, D. Braithwaite and J. Flouquet, *Phys. Rev. B* **72** (2005) 024424.
- [16] S. Drotziger, C. Pfleiderer, M. Uhlarz, H. v. Löhneysen, D. Souptel, W. Löser and G. Behr, *Phys. Rev. B* **73** (2006) 214413.
- [17] H. v. Löhneysen, T. Pietrus, G. Portisch, H.G. Schlager, A. Schröder, M. Sieck and T. Trappmann, *Phys. Rev. Lett.* **72** (1994) 3262.
- [18] P. Gegenwart, F. Kromer, M. Lang, G. Sparn, C. Geibel and F. Steglich, *Phys. Rev. Lett.* **82** (1999) 1293.

-
- [19] O. Trovarelli, C. Geibel, S. Mederle, C. Langhammer, F.M. Grosche, P. Gegenwart, M. Lang, G. Sparn and F. Steglich, *Phys. Rev. Lett.* **85** (2000) 626.
- [20] J. Custers, P. Gegenwart, H. Wilhelm, K. Neumaier, Y. Tokiwa, O. Trovarelli, C. Geibel, F. Steglich, C. Pépin and P. Coleman, *Nature* (London) **424** (2003) 524.
- [21] S.A. Grigera, R.S. Perry, A.J. Schofield, M. Chiao, S.R. Julian, G.G. Lonzarich, S.I. Ikeda, Y. Maeno, A.J. Millis and A.P. Mackenzie, *Science* **294** (2001) 329.
- [22] H. v. Löhneysen, A. Schröder, T. Trappmann and M. Welsch, *J. Magn. Magn. Mat.* **108** (1992) 45.
- [23] M. Nicklas, M. Brando, G. Knebel, F. Mayr, W. Trinkl and A. Loidl, *Phys. Rev. Lett.* **82** (1999) 4268.
- [24] A. de Visser, M.J. Graf, P. Estrela, A. Amato, C. Baines, D. Andreica, F.N. Gygax and A. Schenck, *Phys. Rev. Lett.* **85** (2000) 3005.
- [25] D.A. Sokolov, M.C. Aronson, W. Gannon and Z. Fisk, *Phys. Rev. Lett.* **96** (2006) 116404.
- [26] R. KÜchler, P. Gegenwart, J. Custers, O. Stockert, N. Caroca-Canales, C. Geibel, J.G. Sereni and F. Steglich, *Phys. Rev. Lett.* **96** (2006) 256403.
- [27] J.G. Sereni, T. Westerkamp, R. KÜchler, N. Caroca-Canales, P. Gegenwart and C. Geibel, *Phys. Rev. B* **75** (2007) 024432.
- [28] S. Doniach, *Physica B+C* **91** (1977) 213.
- [29] M.A. Continentino, G.M. Japiassu and A. Troper, *Phys. Rev. B* **39** (1989) 9734.
- [30] M.A. Ruderman and C. Kittel, *Phys. Rev.* **96** (1954) 99.
- [31] J. Kondo, *Prog. Theor. Phys. Jpn.* **32** (1964) 37.
- [32] J. Bardeen, L.N. Cooper and J.R. Schrieffer, *Phys. Rev.* **108** (1957) 1175.
- [33] N.D. Mathur, F.M. Grosche, S.R. Julian, I.R. Walker, D.M. Freye, R.K.W. Haselwimmer and G.G. Lonzarich, *Nature* (London) **394** (1998) 39.
- [34] S.S. Saxena, K. Ahilan, P. Agarwal, F.M. Grosche, R.K. Haselwimmer, M. Steiner, E. Pugh, I.R. Walker, S.R. Julian, P. Monthoux, G.G. Lonzarich, A.D. Huxley, I. Sheikin, D. Braithwaite and J. Flouquet, *Nature* (London) **406** (2000) 587.
- [35] P. Monthoux and G.G. Lonzarich, *Phys. Rev. B* **63** (2001) 054529.
- [36] D. Aoki, A.D. Huxley, E. Ressouche, D. Braithwaite, J. Flouquet, J.P. Brison, E. Lhotel and C. Paulsen, *Nature* (London) **413** (2001) 613.
- [37] T. Akazawa, H. Hidaka, T. Fujiwara, T.C. Kobayashi, E. Yamamoto, Y. Haga, R. Settai and Y. Ōnuki, *J. Phys. Condens. Matter* **16** (2004) L29.
- [38] F. Lévy, I. Sheikin, B. Grenier and A.D. Huxley, *Science* **309** (2005) 1343.
- [39] R. Tróc and V.H. Tran, *J. Magn. Magn. Mat.* **73** (1988) 389.

-
- [40] V. Sechovský and L. Havela, *Handbook of Magnetic Materials*, Vol. 11, ed. K.H.J. Buschow (North Holland, Amsterdam, 1998) 1.
- [41] F. Hardy and A.D. Huxley, *Phys. Rev. Lett.* **94** (2005) 247006.
- [42] H.M. Rietveld, *J. Appl. Cryst.* **2** (1969) 65.
- [43] <http://www.panalytical.com>
- [44] A.C. Larson and R.B.V. Dreele, *GSAS, Technical Report NM87545*, Los Alamos National Laboratory (1994).
- [45] <http://www.ccp14.ac.uk/tutorial/lmgp/orientexpress.htm>
- [46] <http://www.qdusa.com/products/brochures/mpmsXLBro.PDF>
- [47] G.W. Crabtree, *Phys. Rev. B* **16** (1977) 1117.
- [48] <http://www.science.uva.nl/research/cmp/docs/deVisser/posters/HelioxPoster.pdf>
- [49] <http://www.science.uva.nl/research/cmp/docs/deVisser/posters/KelvinoxPoster.pdf>
- [50] A.F. Deutz, R. Hulstaman, and F.J. Kranenburg, *Rev. Sci. Instrum.* **60** (1988) 113.
- [51] Z. Koziol, *Ph.D Thesis* (University of Amsterdam, 1994) unpublished.
- [52] J.C. P. Klaasse, *Rev. Sci. Instrum.* **68** (1997) 89.
- [53] J.C.P. Klaasse, I.H. Hagmusa and E. Brück, *Rev. Sci. Instrum.* **68** (1997) 4208.
- [54] A. Amato, *Rev. Mod. Phys.* **69** (1997) 1119.
- [55] S.J. Blundell, *Contemporary Physics* **40** (1999) 175.
- [56] <http://lmu.web.psi.ch/facilities/gps/gps.html>
- [57] <http://lmu.web.psi.ch/facilities/ltf/ltf.html>
- [58] L.D. Landau, *Sov. Phys. JETP* **3** (1957) 920.
- [59] K. Kadowaki and S.B. Woods, *Solid State Commun.* **58** (1986) 507.
- [60] C.L. Seaman, M.B. Maple, B.W. Lee, S. Ghamaty, M.S. Torikachvili, J.S. Kang, L.Z. Liu, J.W. Allen and D.L. Cox, *Phys. Rev. Lett.* **67** (1991) 2882.
- [61] B. Andraka and G.R. Stewart, *Phys. Rev. B* **47** (1993) 3208.
- [62] M.B. Maple, C.L. Seaman, D.A. Gajewski, Y. Dalichaouch, V.B. Barbetta, M.C. de Andrade, H.A. Mook, H.G. Lukefahr, O.O. Bernal and D.E. McLaughlin, *J. Low Temp. Phys.* **95** (1994) 225.
- [63] P. Estrela, L.C.J. Pereira, A. de Visser, F.R. de Boer, M. Almeida, M. Godinho, J. Rebizant and J.C. Spirlet, *J. Phys.: Condens. Matter* **10** (1998) 9465.
- [64] P. Nozières and A. Blandin, *J. Phys. (Paris)* **41** (1980) 193.
- [65] D.L. Cox and A. Zawadowski, *Adv. Phys.* **47** (1998) 599.

-
- [66] D.L. Cox, *Phys. Rev. Lett.* **59** (1987) 1240.
- [67] H. Amitsuka, T. Hidano, T. Honma, H. Mitamura and T. Sakakibara, *Physica B* **186** (1993) 337.
- [68] T.S. Kim and D.L. Cox, *Phys. Rev. Lett.* **75** (1995) 1622.
- [69] E. Miranda, V. Dobrosavljević and G. Kotliar, *J. Phys.: Condens. Matter* **8** (1996) 9871.
- [70] V. Dobrosavljević, T.R. Kirkpatrick and G. Kotliar, *Phys. Rev. Lett.* **69** (1992) 1113.
- [71] A.H. Castro Neto, G. Castilla and B.A. Jones, *Phys. Rev. Lett.* **81** (1998) 3531.
- [72] R.B. Griffiths, *Phys. Rev. Lett.* **23** (1969) 17.
- [73] A. Schröder, G. Aeppli, R. Coldea, M. Adams, O. Stockert, H. v. Löhneysen, E. Bucher, R. Ramazashvili and P. Coleman, *Nature* (London) **407** (2000) 351.
- [74] D. van der Marel, H.J.A. Molegraaf, J. Zaanen, Z. Nussinov, F. Carbone, A. Damascelli, H. Eisaki, M. Greven, P.H. Kes and M. Li, *Nature* (London) **425** (2003) 271.
- [75] A. Yeh, Y.A. Soh, J. Brooke, G. Aeppli, T.F. Rosenbaum and S.M. Hayden, *Nature* (London) **419** (2002) 459.
- [76] S.L. Sondhi, S.M. Girvin, J.P. Carini and D. Shahar, *Rev. Mod. Phys.* **69** (1997) 315.
- [77] K.G. Wilson, *Phys. Rev. B* **4** (1971) 3184.
- [78] D. Belitz and T.R. Kirkpatrick, *Dynamics: Models and Kinetic Methods for Non-Equilibrium Many Body Systems*, ed. J. Karkheck (Kluwer, Dordrecht, 2000) p. 399.
- [79] A. Rosch, *Physica B* **280** (2000) 341.
- [80] J. Hertz, *Phys. Rev. B* **14** (1976) 1165.
- [81] A.J. Millis, *Phys. Rev. B* **48** (1993) 7183.
- [82] T. Moriya, *Spin Fluctuations in Itinerant Electron Magnetism* (Springer, Berlin, 1985).
- [83] L. Zhu, M. Garst, A. Rosch and Q. Si, *Phys. Rev. Lett.* **91** (2003) 066404.
- [84] W. Jones and N.H. March, *Theoretical Solid State Physics* (Wiley, London, 1973).
- [85] C. Pfleiderer, S.R. Julian and G.G. Lonzarich, *Nature* (London) **414** (2001) 427.
- [86] C. Pfleiderer and A.D. Huxley, *Phys. Rev. Lett.* **89** (2002) 147005.
- [87] D. Belitz, T.R. Kirkpatrick and T. Vojta, *Phys. Rev. Lett.* **82** (1999) 4707.
- [88] D. Belitz and T.R. Kirkpatrick, *Phys. Rev. Lett.* **89** (2002) 247202.
- [89] D. Belitz, T.R. Kirkpatrick and J. Rollbühler, *Phys. Rev. Lett.* **94** (2005) 247205.
- [90] D.D. Osheroff, R.C. Richardson and D.M. Lee, *Phys. Rev. Lett.* **28** (1972) 885.
- [91] F. Steglich, J. Aarts, C.D. Bredl, W. Lieke, D. Meschede, W. Franz and H. Schäfer, *Phys. Rev. Lett.* **43** (1979) 1892.

-
- [92] A. de Visser, J.J.M. Franse, A. Menovsky and T.T.M. Palstra, *J. Phys. F: Met. Phys.* **14** (1984) L191.
- [93] W. Schlabitz, J. Baumann, B. Pollit, U. Rauchschalbe, H.M. Mayer, U. Ahlheim and C.D. Bredl, *Z. Phys. B* **62** (1986) 171.
- [94] C. Geibel, C. Schank, S. Thies, H. Kitazawa, C.D. Bredl, A. Böhm, M. Rau, A. Grauel, R. Caspary, R. Helfrich, U. Ahlheim, G. Weber and F. Steglich, *Z. Phys. B* **84** (1991) 1.
- [95] J.D. Thompson, R. Movshovich, Z. Fisk, F. Bouquet, N.J. Curro, R.A. Fisher, P.C. Hammel, H. Heeger, M.F. Hundley, M. Jaime, P.G. Pagliuso, C. Petrovic, N.E. Philips and J.L. Sarrao, *J. Magn. Magn. Mater.* **226-230** (2001) 5.
- [96] C. Petrovic, R. Movshovich, M. Jaime, P.G. Hundley, J.L. Sarrao, Z. Fisk and J.D. Thompson, *Europhys. Lett.* **53** (2001) 354.
- [97] E. Bauer, G. Hilscher, H. Michor, C. Paul, E.W. Scheidt, A. Griбанov, Y. Seropegin, H. Noel, M. Sigrist and P. Rogl, *Phys. Rev. Lett.* **92** (2004) 027003.
- [98] J.G. Bednorz and K.A. Müller, *Z. Phys. B* **64** (1986) 189.
- [99] E.D. Bauer, N.A. Frederick, P.C. Ho, V.S. Zapf and M.B. Maple, *Phys. Rev. B* **65** (2002) 100506.
- [100] A. Abanov, A.V. Chubukov and J.A.M. Finkelstein, *Europhys. Lett.* **54** (2001) 488.
- [101] D. Jaccard, K. Behnia and J. Sierro, *Phys. Lett. A* **163** (1992) 475.
- [102] R. Movshovich, T. Graf, D. Mandrus, J.D. Thompson, J.L. Smith and Z. Fisk, *Phys. Rev. B* **53** (1996) 8241.
- [103] H. Hegger, C. Petrovic, E.G. Moshopoulou, M.F. Hundley, J.L. Sarrao, Z. Fisk and J.D. Thompson, *Phys. Rev. Lett.* **84** (2000) 4986.
- [104] F. Lévy, I. Sheikin and A.D. Huxley, *Nature Physics* **3** (2007) 460.
- [105] D. Fay and J. Appel, *Phys. Rev. B* **22** (1980) 3173.
- [106] V.P. Mineev and T. Champel, *Phys. Rev. B* **69** (2004) 144521.
- [107] D. Belitz and T.R. Kirkpatrick, *Phys. Rev. B* **69** (2004) 184502.
- [108] R. Roussev and A.J. Millis, *Phys. Rev. B* **63** (2001) 140504.
- [109] T.R. Kirkpatrick, D. Belitz, T. Vojta and R. Narayanan, *Phys. Rev. Lett.* **87** (2001) 127003.
- [110] K.G. Sandeman, G.G. Lonzarich and A.J. Schofield, *Phys. Rev. Lett.* **90** (2003) 167005.
- [111] I.A. Fomin, *JETP Lett.* **74** (2001) 111.
- [112] V.P. Mineev, *Phys. Rev. B* **66** (2002) 134504.
- [113] B. Chevalier, B. Lloret, P. Gravereau, B. Buffat and J. Etourneau, *J. Magn. Magn. Mat.* **75** (1988) 13.
- [114] V.H. Tran, R. Tróc and D. Badurski, *J. Magn. Magn. Mat.* **87** (1990) 291.

-
- [115] K.H.J. Buschow, E. Brück, R.G. van Wierst, F.R. de Boer, L. Havela, V. Sechovský, P. Nozar, E. Sugiura, M. Ono, M. Date and A. Yamagishi, *J. Appl. Phys.* **67** (1990) 5215.
- [116] F.R. de Boer, E. Brück, V. Sechovský, L. Havela and K.H.J. Buschow, *Physica B* **163** (1990) 175.
- [117] V.H. Tran, R. Tróc and G. André, *J. Magn. Magn. Mat.* **186** (1998) 81.
- [118] I.H. Hagmusa, K. Prokeš, Y. Echizen, T. Takabatake, T. Fujita, J.C.P. Klaasse, E. Brück, V. Sechovský and F.R. de Boer, *Physica B* **281-282** (2000) 223.
- [119] K. Prokeš, T. Tahara, Y. Echizen, T. Takabatake, T. Fujita, I.H. Hagmusa, J.C.P. Klaasse, E. Brück, F.R. de Boer, M. Diviš and V. Sechovský, *Physica B* **311** (2002) 220.
- [120] F. Hardy, A.D. Huxley, J. Flouquet, B. Salce, G. Knebel, D. Braithwaite, D. Aoki, M. Uhlarz and C. Pfleiderer, *Physica B* **359-361** (2005) 1111.
- [121] S. Sakarya, N.H. van Dijk, A. de Visser and E. Brück, *Phys. Rev. B* **67** (2003) 144407.
- [122] B. Lloret, *Ph.D Thesis* (University of Bordeaux I, 1988) unpublished.
- [123] S. Sakarya, N.T. Huy, N.H. van Dijk, Anne de Visser, M. Wagemaker, A.C. Moleman, T.J. Gortenmulder, J.C.P. Klaasse, M. Uhlarz and H. v. Löhneysen, *J. Alloys Compounds* **457** (2008) 51.
- [124] L. Vegard, *Z. Phys.* **5** (1921) 17.
- [125] H.H. Hill, *Plutonium 1970 and Other Actinides*, ed. W.N. Miner (AIME, New York, 1970) 1.
- [126] A.S. Arrott and B. Heinrich, *J. Appl. Phys.* **52** (1990) 2113.
- [127] J.W. Essam and M.E. Fisher, *J. Chem. Phys.* **38** (1963) 802.
- [128] J.C. Le Guillou and J. Zinn-Justin, *Phys. Rev. B* **21** (1980) 3976.
- [129] A. Arrott, *Phys. Rev.* **108** (1957) 1394.
- [130] S. Sakarya, N.H. van Dijk, A. de Visser, E. Brück, Y. Huang, J.A.A.J. Perenboom, H. Rakoto and J.-M. Broto, *J. Magn. Magn. Mat.* **310** (2007) 1564.
- [131] E.C. Stoner and E.P. Wohlfarth, *Philos. Trans. R. Soc. London* **240** (1948) 599.
- [132] P.R. Rhodes and E.P. Wohlfarth, *Proc. R. Soc. London* **273** (1963) 247.
- [133] N. Hessel Andersen and H. Smith, *Phys. Rev. B* **19** (1979) 384.
- [134] See, e.g., A. Tari, *The Specific Heat of Matter at Low Temperatures* (Imperial College Press, London, 2003).
- [135] P. Pedrazzini, M.G. Berisso, N.C. Canales, M. Deppe, C. Geibel and J.G. Sereni, *Eur. Phys. J. B* **38** (2004) 445.
- [136] D.J. Mixson, J.S. Kim, M. Swick, T. Jones, and G.R. Stewart, E.-W. Scheidt and W. Scherer, T. Murphy and E.C. Palm, *Phys. Rev. B* **73** (2006) 125106.
- [137] V.H. Tran, W. Müller, M. Baenitz and F. Steglich, *J. Phys.: Condens. Matter* **19** (2007) 096201.

-
- [138] W. Miiller, V.H. Tran and A. Kondrat, *Mater. Sci.-Poland* **25** (2007) 391.
- [139] A. Eiling and J.S. Schilling, *Phys. Rev. Lett.* **46** (1981) 364.
- [140] S. Sakarya, *Ph.D Thesis* (University Delft, 2007) unpublished.
- [141] V. Sechovský, L. Havela, F.R. de Boer, P.A. Veenhuizen, K. Sugiyama, T. Kuroda, E. Sugiura, M. Ono, M. Date and A. Yamagishi, *Physica B* **177** (1992) 164.
- [142] Q.G. Sheng and B.R. Cooper, *J. Appl. Phys.* **75** (1994) 7035.
- [143] N.B. Perkins, M.D. Núñez-Regueiro, B. Coqblin and J.R. Iglesias, *Phys. Rev. B* **76** (2007) 125101.
- [144] V.H. Tran, A. Ślebarski and W. Miiller, *J. Alloys and Compounds* **451** (2008) 497.
- [145] A. Gassparini *et al.*, to be published.
- [146] H. v. Löhneysen, *J. Phys.: Condens. Matter* **8** (1996) 9689.
- [147] R. Vollmer, T. Pietrus, H. v. Löhneysen, R. Chau and M.B. Maple, *Phys. Rev. B* **61** (2000) 1218.
- [148] A.P. Pikul, N. Caroca-Canales, M. Deppe, P. Gegenwart, J.G. Sereni, C. Geibel and F. Steglich, *J. Phys.: Condens. Matter* **18** (2006) L535.
- [149] E. Miranda and, V. Dobrosavljević, *Rep. Prog. Phys.* **68** (2005) 2337.
- [150] H.U. Desgranges and K.D. Schotte, *Phys. Lett. A* **91** (1982) 240.
- [151] F. Canepa, P. Manfrinetti, M. Pani and A. Palenzona, *J. Alloys Compounds* **234** (1996) 225.
- [152] K. Prokeš, E. Brück, K.H.J. Buschow, F.R. de Boer, V. Sechovský, P. Svoboda, X. Hu, H. Maletta and T.J. Gortenmulder, *J. Appl. Phys.* **79** (1996) 5221.
- [153] F. Honda, A.V. Andreev, V. Sechovský and K. Prokeš, *Physica B* **329-333** (2003) 486.
- [154] E. Brück, *Ph.D Thesis* (University of Amsterdam, 1991) unpublished.
- [155] N.F. Berk and J.R. Schrieffer, *Phys. Rev. Lett.* **17** (1966) 433.
- [156] S. Ogawa, *Physica B+C* **91** (1977) 82.
- [157] Y. Masuda, T. Hioki and A. Oota, *Physica B+C* **91** (1977) 291.
- [158] K. Ueda and T. Moriya, *J. Phys. Soc. Jpn.* **39** (1975) 605.
- [159] K. Ueda, *Solid State Commun.* **19** (1976) 965.
- [160] P.D. Hamburger, R.J. Olwert and C.W. Chu, *Phys. Rev. B* **11** (1975) 3501.
- [161] E.P. Wohlfarth, *Physica B+C* **91** (1977) 305.
- [162] K. Ikeda and K.A. Gschneidner, *J. Magn. Magn. Mater.* **22** (1981) 207.
- [163] K. Makoshi and T. Moriya, *J. Phys. Soc. Jpn.* **38** (1975) 10.
- [164] W.F. Brinkman and S. Engelsberg, *Phys. Rev.* **169** (1968) 417.

-
- [165] R. Kubo and T. Toyabe, *Magnetic Resonance and Relaxation*, ed. R. Blinc (North-Holland, Amsterdam, 1967) 810.
- [166] T.P. Orlando, E.J. McNiff, S. Foner and M.R. Beasley, *Phys. Rev. B* **19** (1979) 4545.
- [167] A. de Visser, *Ph.D Thesis* (University of Amsterdam, 1986) unpublished.
- [168] A.J. Millis, S. Sachdev and C.M. Varma, *Phys. Rev. B* **37** (1988) 4975.
- [169] A.M. Clogston, *Phys. Rev. Lett.* **9** (1962) 266.
- [170] R.A. Klemm and K. Scharnberg, *Physica B+C* **135** (1985) 53.
- [171] N.T. Huy, A. Gasparini, D.E. de Nijs, Y. Huang, J.C.P. Klaasse, T. Gortenmulder, A. de Visser, A. Hamann, T. Görlach and H. v. Löhneysen, *Phys. Rev. Lett.* **99** (2007) 067006.
- [172] T. Ohta, Y. Nakai, Y. Ihara, K. Ispida, K. Deguchi, N.K. Sato and I. Satoh, *J. Phys. Soc. Jpn.* **77** (2008) 023707.
- [173] V. Sechovksy, *private communication*.
- [174] P. de la Mora and O. Zavorro, *e-print arXiv:0709.2351*.
- [175] M. Diviš, *Physica B*, in print.
- [176] G.G. Lonzarich and L. Taillefer, *J. Phys. C: Solid State Phys.* **18** (1985) 4339.
- [177] N.R. Werthamer, E. Helfand and P.C. Hohenberg, *Phys. Rev.* **147** (1966) 295.
- [178] D. Rainer, G. Bergmann and U. Eckhardt, *Phys. Rev. B* **8** (1973) 5324.
- [179] K. Scharnberg and R.A. Klemm, *Phys. Rev. Lett.* **54** (1985) 2445.
- [180] K. Scharnberg and R.A. Klemm, *Phys. Rev. B* **22** (1980) 5233.
- [181] B.S. Shivaram, T. F. Rosenbaum and D. G. Hinks, *Phys. Rev. Lett.* **57** (1986) 1259.
- [182] D.W. Hess, T.A. Tokuyasu and J.A. Sauls, *J. Phys.: Condens. Matter* **1** (1989) 8135.
- [183] D.E. de Nijs, *MSc Thesis* (University of Amsterdam, 2007), unpublished.
- [184] N.T. Huy, A. Gasparini, J.C.P. Klaasse, A. de Visser, S. Sakarya, and N.H. van Dijk, *Phys. Rev. B* **75** (2007) 212405.
- [185] G.G. Lonzarich, in *Electron: A Centenary Volume*, ed. M. Springford (Cambridge Univ. Press, Cambridge, 1997) Chapter 6.
- [186] P. Monthoux, D. Pines and G.G. Lonzarich, *Nature* (London) **450** (2007) 1177.
- [187] A.A. Abrikosov and L.P. Gor'kov, *Soviet Phys. JETP* **12** (1961) 1243.
- [188] P.I. Larkin, *Sov. Phys. JETP Lett.* **2** (1965) 130.
- [189] R.J. Radtke, K. Levin, H.-B. Schüttler and M.R. Norman, *Phys. Rev. B* **48** (1993) 653.
- [190] A.P. Mackenzie, R.K.W. Haselwimmer, A.W. Tyler, G.G. Lonzarich, Y. Mori, S. Nishizaki and Y. Maeno, *Phys. Rev. Lett.* **80** (1998) 161.