

Biographical Data: Igor F. Lyuksyutov

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Positions Held:

2011, *September - present, Professor*, TAMU, College Station.

2005, *September - 2011, August, Associate Professor*, TAMU, College Station.

1996 - 2005. *Visiting Professor*, TAMU, College Station.

1990 - 1996 *Research Scientist* at:

(i) Laboratoire de Magnetisme Louis Neel, Grenoble, France;

(ii) Institute for Solid State Physics, Hannover University, Hannover, Germany;

(iii) Institute for Theoretical Physics, Cologne University, Germany;

(iv) Institute for Theoretical Physics III, Ruhr-University, Bochum, Germany;

(v) Physical Institute, Technical University Clausthal, Germany.

1979-89 *Engineer, Senior Engineer, Researcher*, Institute of Physics, Kiev, Ukraine.

Education

1976. B.S. in *Electrical Engineering*, Moscow Phys.-Tech. Institute, Moscow.

1979. M.S. in *Theoretical Physics*, Landau Institute of Theoretical Physics, Moscow.

1990. PhD in *Condensed Matter Theory*, Supreme Attestation Commission, Moscow and Institute of Physics, Kiev.

Awards

Humboldt Fellowship (fellowship for young post-docs), awarded in 1990 by Alexander von Humboldt Foundation, Germany

Bourse de Haut Niveau (fellowship for top scientists from Eastern Europe), awarded in 1996 by Ministry of Education and Research, France

Publications

Two books, 91 articles in refereed journals, 120 refereed publications total (including refereed proceedings and invention disclosures) More than 1400 citations.

Presentations

84 invited presentations have been given at international and national conferences, colloquia and seminars.

Teaching at TAMU

I have taught physics to more than 2500 TAMU students.

Courses taught: PHYS 689 (Magnetism), PHYS 302 (Advanced Mechanics), PHYS 222 (Modern Physics), PHYS 221 (Optics and Thermodynamics), PHYS 218 (Mechanics for Engineers) 10 semesters, PHYS 208 (Electricity and Magnetism for Engineers) 2 semesters, PHYS 202 (College Physics) 8 semesters, PHYS 201 (College Physics) 6 semesters

Supervisor for postdocs (K. Kim, Z. Ye, V. Krasovitskiy, K. D. D. Rathnayaka)

Principal adviser for graduate students (N. Berry, J. Wise, L. Sheffield)

Adviser for graduate students (S. Erdin, A. Kayali, A. Ozmetin, H. Lee, T. Morrison, M. Hickey, W. Bang, Z. Wei)

Adviser for undergraduate students (B. King, S. Grant, C. Berggren, A. Lever, B. Savoie, D. Saenz, M. Hickey)

LIST OF REFEREED PUBLICATIONS
IGOR F. LYUKSYUTOV

BOOKS

120. I.F.Lyuksyutov, A.G.Naumovets, and V.L.Pokrovsky,
Two-Dimensional Crystals,
Academic Press, Boston, 423p. 1992.
119. I.F.Lyuksyutov, A.G.Naumovets, and V.L.Pokrovsky,
Two-Dimensional Crystals,
Naukova Dumka, Kiev, 220p. 1988. (in Russian)

ARTICLES IN REFEREED JOURNALS

- 118 Z. Wei, Z. Ye, K. D. D. Rathnayaka, I. F. Lyuksyutov, W. Wu, D. G. Naugle,
Superconductivity of a Sn film controlled by an array of Co nanowires,
Magnetic nanorods superconductor hybrid near the superconducting transition temperature,
Physica C 479, 41 (2012)
doi: 10.1016/j.physc.2011.12.027
117. Q. Wei, I. F. Lyuksyutov and D. Herschbach,
Merged-beams for slow molecular collision experiments,
J. Chem. Phys. 137, 054202 (2012).,
doi: 10.1063/1.4739315
116. L. Sheffield, M. Hickey, V. Krasovitsky, K.D.D. Rathnayaka, I. F. Lyuksyutov and D. Herschbach,
Pulsed rotating supersonic source for merged molecular beams,
Rev. Sci. Instrum. 83, 064102 (2012).
doi: 10.1063/1.4727883
115. Z. Ye, I. F. Lyuksyutov, W. Wu and D. G. Naugle,
Superconducting properties of $Pb_{82}Bi_{18}$ films controlled by ferromagnetic nanowire arrays,
Supercond. Sci. Technol. 24,024019 (2011)
doi:10.1088/0953-2048/24/2/024019
114. Z. Ye, I. F. Lyuksyutov, W. Wu and D. G. Naugle,
Strongly anisotropic flux pinning in superconducting $Pb_{82}Bi_{18}$ thin films covered by periodic ferromagnet stripes,
Supercond. Sci. Technol. 24, 024011 (2011)
doi: 10.1088/0953-2048/24/2/024011
113. K. Kim, I. F. Lyuksyutov and D. G. Naugle,
Magnetic nanorods superconductor hybrid near the superconducting transition temperature,
Supercond. Sci. Technol. 24, 024013 (2011)
doi: 10.1088/0953-2048/24/2/024013
112. K. Kim, A. E. Ozmetin, D. G. Naugle and I. F. Lyuksyutov,
Flux Pinning with a Magnetic Nanorod Array,
App. Phys. Lett. **97**, 042501 (2010);
doi:10.1063/1.3467452
Selected for: *Vir. J. Appl. Supercond.* Volume 19 / Issue 3 (2010)

111. K. Kim, D. G. Naugle, W. Wu and I. F. Lyuksyutov
Large Increase of the Critical Field in a Magnet-Superconductor Nanowire Hybrid
Journal of Superconductivity and Novel Magnetism, **23**, 1075 (2010)
DOI: 10.1007/s10948-010-0685-0
110. I. F. Lyuksyutov
Magnetic Nanorod-Superconductor Hybrids
Journal of Superconductivity and Novel Magnetism, **23**, 1047 (2010)
DOI: 10.1007/s10948-010-0678-z
109. Zuxin Ye, D. G. Naugle, Wenhao Wu and I. Lyuksyutov
Superconducting Properties of Pb/Bi Films Quench-Condensed on a Porous Alumina Substrate Filled with Co Nanowires
Journal of Superconductivity and Novel Magnetism, **23**, 1083 (2010)
DOI: 10.1007/s10948-010-0684-1
108. I. F. Lyuksyutov, D. G. Naugle, A. E. Ozmetin, M. K. Yapici and J. Zou
Vortex Pinning by an Inhomogeneous Magnetic Field
Journal of Superconductivity and Novel Magnetism, **23**, 1079 (2010)
DOI: 10.1007/s10948-010-0686-z
107. A. E. Ozmetin, M. K. Yapici, J. Zou, I. F. Lyuksyutov, D. G. Naugle
Micro Magnet-Superconducting Hybrid Structures with Directional Current Flow Dependence for Persistent Current Switching, *App. Phys. Lett.* **95**, 022506 (2009).
Selected for: *Vir. J. Appl. Supercond.* / Volume 17 / Issue 2
106. A.E. Ozmetin, K. D. D. Rathnayaka, D. G. Naugle, and I. F. Lyuksyutov,
Strong increase in critical field and current in magnet-superconductor hybrids,
J. Appl. Phys. 105, 07E324 (2009)
Selected for: *Vir. J. Appl. Supercond.* Volume 16 / Issue 7
105. Zuxin Ye, Haidong Liu, Zhiping Luo, Han-Gil Lee, Wenhao Wu, D. G. Naugle, and I. Lyuksyutov,
Changes in the crystalline structure of electroplated Co nanowires induced by small template pore size,
J. Appl. Phys. 105, 07E126 (2009)
Selected for: *Vir. J. Nan. Sci. & Tech.* Volume 19 / Issue 13
104. Z. Ye, H. Liu, Z. Luo, H. Lee, W. Wu, D. G. Naugle and I. Lyuksyutov
Thickness dependence of the microstructure and magnetic properties of electroplated Co nanowires.
Nanotechnology 20, 045704 (2009))
103. Z. Ye, H. Liu, I. Schultz, W. Wu, D.G. Naugle, and I. Lyuksyutov,
Template-based fabrication of nanowire-nanotube hybrid arrays,
Nanotechnology, 19 325303 (2008)
Featured in: <http://nanotechweb.org/cws/article/lab/38377>
102. I.F. Lyuksyutov,
Magnetic Decelerator for Particle Beams,
Mod. Phys. Lett. B 21, 1879-1883 (2007).
101. I.F. Lyuksyutov and V.L. Pokrovsky
Ferromagnet-Superconductor Hybrids.
Advances in Phys. 54, 67-136, (2005).
DOI: 10.1080/00018730500057536

100. I. F. Lyuksyutov, D.G. Naugle and K.D.D. Rathnayaka
On-Chip Manipulation of Levitated Femtodroplets. *Appl. Phys. Lett.* **85**, 1817 (2004).
Selected for:
Virtual Journal of Nanoscale Science and Technology (MEMS/NEMS)
(<http://www.vjnano.org/nano/>) v.10 issue 13 September 27 2004.
Featured in:
(i) *Nature (Research Highlights Physics)* **431**, 524, September 30, 2004
Levitating Femtodroplets by Mark Peplow
(ii) *Nature Materials (Nanozone)* (<http://www.nature.com/materials/>) September 30, 2004,
Levitating Laboratories by Philip Ball
(iii) *Physics World (PhysicsWeb)* September 6, 2004
Floating Femtodroplets by Belle Dume,
(<http://physicsweb.org/article/news/8/9/3>).
(iv) *Chemical and Engineering News* **82**, #37, p.8, September 13, 2004
Floating Droplets by Stu Borman,
(<http://pubs.acs.org/cen/news/8237/8237notw6.html>)
99. I. F. Lyuksyutov and D. G. Naugle,
Magnet/Superconductor Nanostructures.
J. Mod. Phys. B, **17**, 3441 (2003).
98. I. F. Lyuksyutov and D. G. Naugle,
Magnetic Nanowires/Superconductor Hybrids.
J. Mod. Phys. B, **17**, 3713 (2003).
97. I. F. Lyuksyutov, A. Lyuksyutova, K.D.D. Rathnayaka and D.G. Naugle
Trapping Microparticles with Strongly Inhomogeneous Magnetic Fields.
Modern Phys. Lett. B **17**, 935 (2003).
96. I. F. Lyuksyutov
Nanoscale Magnetic Traps.
Modern Phys. Lett. B **16**, 569-576 (2002).
95. S. Erdin, A. F. Kayali, I. F. Lyuksyutov and V. L. Pokrovsky,
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Phys. Rev. B **66**, 014414 (2002).
94. S. Erdin, I. F. Lyuksyutov, V. L. Pokrovsky and V. M. Vinokur,
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93. G. Godzik, H. Pfnur and I. Lyuksyutov,
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92. I. F. Lyuksyutov, H.-U. Everts and H. Pfnür.
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Surface Sci. **481**, 124-134, (2001).

91. I. F. Lyuksyutov and D.G. Naugle
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Physica C, **341-348**, 1267-1268, (2000).
90. I.F. Lyuksyutov and V.L. Pokrovsky
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Mod. Phys. Lett. B **14**, 409-414, (2000)
89. I. F. Lyuksyutov, D. G. Naugle and V. L. Pokrovsky,
Frozen Flux Superconductors.
Proc. SPIE Vol. 4058. p. 376-387, *Superconducting and Related Oxides: Physics and Nanoengineering IV* Davor Pavuna; Ivan Bozovic; Eds. 2000.
88. D.E. Feldman, I.F. Lyuksyutov, V.L. Pokrovsky and V. M. Vinokur,
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Europhys.Lett. **51** p.110-115, (2000).
87. A. Fedorus, D. Kolthoff, V. Koval, I. Lyuksyutov, A. G. Naumovets, and H. Pfnür,
Phase transitions in the adsorption system Li/Mo(112)
Phys.Rev. B **62** 2852-2861, 2000.
86. H. Pfnür H, C. Voges, K. Budde, I. Lyuksyutov, H.-U. Everts,
Quantitative studies of two-dimensional first- and second-order phase transitions by integrating diffraction methods
J.Phys.: Condens.Matter, **11**, 9933-9942, (1999).
85. A. G. Fedorus, I. F. Lyuksyutov, D. Kolthoff, V. Koval, A. G. Naumovets, H. Pfnur,
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Europhys.Lett. **48** p.442-448, (1999).
84. K. Budde, I. Lyuksyutov, H. Pfnür, G. Godzik and H.-U. Everts
Scaling of the hysteresis loop in two-dimensional solidification
Europhys.Lett. **47** p.575-581, (1999).
83. I. F. Lyuksyutov and D.G. Naugle
Frozen Flux Superconductors
Mod.Phys.Lett. B **13** (15) 491-497, 1999.
82. I.F. Lyuksyutov and V.L. Pokrovsky
Magnetic Polarons Mediated Percolative Phase Transition in Manganites
Mod.Phys.Lett. B **13** 379-384, 1999.
81. I.F. Lyuksyutov, T. Nattermann, V.L. Pokrovsky,
Theory of the hysteresis loop in ferromagnets
Phys.Rev. B **59** 4260-4272, 1999.
80. I.F. Lyuksyutov and V. Pokrovsky,
Magnetization controlled superconductivity in a film with magnetic dots
Phys.Rev.Lett. **81** 2344-2347, 1998.
79. I. F. Lyuksyutov, and V. L. Pokrovsky.
Magnetism Coupled Vortex Matter
Proc. SPIE Vol. 3480, p. 230-235, *Superconducting Superlattices II: Native and Artificial*, Ivan Bozovic; Davor Pavuna; Eds. 1998.

78. I.F.Lyuksyutov, H.Pfnür, and H.-U.Everts,
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Europhys.Lett. **41**, p. 395-399 (1998).
77. I.F.Lyuksyutov, and H.-U.Everts,
Faceting via correlated disorder of a stochastically growing interface or domain boundary.
Phys.Rev.B, **57**, p.1957-1962 (1998).
76. I.F.Lyuksyutov, H.Pfnür, and H.-U.Everts,
Domain wall evaporation transition in a two-dimensional layer,
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75. I.F.Lyuksyutov,
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J.Phys.: Condens.Matter, **7**, p.7153-7161 (1995).
74. I.F.Lyuksyutov,
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Europhys.Lett., **31**, p.237-242 (1995).
73. L.-H.Tang, and I.F.Lyuksyutov,
Directed polymer localization in a disordered medium:
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72. M.Stolzenberg, I.Lyuksyutov and E.Bauer,
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Phys.Rev.B, **48**, p.2675-2679 (1993).
71. I.F.Lyuksyutov,
Flux pinning by linear defects,
Europhys.Lett., **20**, p.273-278 (1992).
70. V.L.Pokrovsky, I.Lyuksyutov and T.Nattermann,
Angular dependence of the critical current in layered superconductors,
Phys.Rev.B **46**, p.3071-3075 (1992).
69. T.Nattermann and I.Lyuksyutov,
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faces of disordered crystals"
Phys.Rev.Lett. **68**, p.3366 (1992).
68. E.V.Klimenko, E.M.Litvinova, I.F.Lyuksyutov, A.G.Naumovets and I.N.Zasimovich,
Incommensurate structures in a Ba-Mo(110) system: influence of temperature and frozen defects,
Surface Sci. **271**, p.244-252 (1992).
67. K.Grzelakowski, I.F.Lyuksyutov and E.Bauer,
Deconstruction via adsorbate-driven ordering,
Phys.Rev.B **45**, p.6877-6881 (1992).
66. M.Stolzenberg, I.F.Lyuksyutov and E.Bauer,
Phase transition in a domain-wall lattice,
Phys.Rev.B, **44**, p.12593-12596 (1991).

65. I.N.Zasimovich, E.V.Klimenko, E.M.Litvinova, I.F.Lyuksyutov, and A.G.Naumovets, Soliton lattices in the Ba-Mo(110) system, Ukr.Fiz.Zh. **36**, p.1430-1434 (1991), (in Russian), English translation. in Ukr.J.Phys. **36**, No.9, (1991).
64. T.Nattermann, I.Lyuksyutov and M.Schwartz, Flux creep in two-dimensional vortex glasses near H_{c1} , Europhys.Lett., **16**, p.295-300 (1991).
63. T.Nattermann, M.V.Feigelman and I.F.Lyuksyutov , Low density flux fluids in high- T_c superconductors: the influence of disorder, Z.Phys.B, **84**, p.353-359 (1991).
62. M.Stolzenberg, I.F.Lyuksyutov and E.Bauer, Domain wall lattices in the Te/W(211) system, Phys.Rev.B, **42**, p.10714-10723 (1990).
61. Yu.S.Vedula, A.T.Loburets, I.F.Lyuksyutov, A.G.Naumovets, and V.V.Poplavsky, Surface diffusion and interaction of adsorbed particles of the electropositive elements on the metals with high melting temperature, Kinetika y Kataliz, **31**, p.315-336 (1990). (in Russian)
60. K.Grzelakowski, I.F.Lyuksyutov and E.Bauer, Direct observation of scaling by high resolution low energy electron diffraction, Phys.Rev.Lett. **64**, p.32-35 (1990).
59. I.F.Lyuksyutov, Adsorption on vicinal surfaces, Ukr.Fiz.Zh. **35**, p.81-86 (1990). (in Russian)
58. A.T.Loburets, I.F.Lyuksyutov, A.G.Naumovets, V.V.Poplavsky and Yu.S.Vedula, Ordered phases and surface diffusion in adsorbed layers of electropositive metals. In *Physics and Chemistry of Alkali Metal Adsorption*, Elsevier, Amsterdam, 1989.
57. I.F.Lyuksyutov and E.Bauer, Uniaxial incommensurate crystal with two-component displacement vector in overlayers , Surface Sci. **223**, p.424-440 (1989).
56. I.F.Lyuksyutov and E.Bauer, On the ground state of commensurate overlayer lattices in a weak substrate potential, Surface Sci. **220**, p.29-46 (1989).
55. K.Grzelakowski, I.F.Lyuksyutov and E.Bauer, Reconstruction of the (2x2)-O/Mo(110) system, Surface Sci. **216**, p.472-480 (1989).
54. I.F.Lyuksyutov, Two-dimensional wetting on the elastic substrate, Zh.Eksp.Teor.Fiz. **94**, 7, p.271-275 (1988). English translation in: Sov.Phys.JETP **67**, p.1626-1630 (1988).
53. I.F.Lyuksyutov, One-dimensional crystal in the field of two potentials with incommensurate periods, Zh.Eksp.Teor.Fiz. **94**, 7, p.271-275 (1988), English translation in: Sov.Phys.JETP **67**, p.1450-1452 (1988).

52. Yu.S.Vedula, I.F.Lyuksyutov, A.G.Naumovets and V.V.Poplavsky,
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Fiz.Tverd.Tela **29**, p.971-976 (1987),
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51. I.F.Lyuksyutov, A.G.Naumovets, and Yu.S.Vedula,
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in *Solitons* ed. by S.E.Trullinger, V.E.Zakharov and V.L.Pokrovsky, Elsevier, p.607-622, 1986.
50. I.F.Lyuksyutov,
Tetragonal-monoclinic phase transition in two-dimensional crystals,
Zh.Eksp.Teor.Fiz. **89**, p.1067-1070 (1985),
English translation in: Sov.Phys.JETP **62**, p.615-616 (1985).
49. I.F.Lyuksyutov,
Localisation of solitons in adsorbed films,
Zh.Eksp.Teor.Fiz. **88**, p.871-877 (1985),
English translation in: Sov.Phys.JETP **61**, p.512-515 (1985).
48. I.F.Lyuksyutov and M.V.Feigelman,
Point defects and order in a two-dimensional soliton lattice,
Zh.Eksp.Teor.Fiz. **86**, p.774-777 (1984),
English translation in: Sov.Phys.JETP **59**, p.451-453 (1984).
47. M.V.Feigelman and I.F.Lyuksyutov ,
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Sol.State Comm. **48**, p.397-398 (1983).
46. I.F.Lyuksyutov ,
Substrate defects and commensurate-incommensurate phase transition in adsorbed films,
Pis'ma Zh.Eksp.Teor.Fiz. **38**, p.165-167 (1983),
English translation in: JETP Lett.**38**, p.193-196 (1983).
45. I.F.Lyuksyutov,
Phase transitions in adsorbed films,
Ukr.Fiz.Zh. **26**, p.1281-1299 (1983). (in Russian)
44. Yu.S.Vedula, I.F.Lyuksyutov, A.G.Naumovets and V.V.Poplavsky,
Surface defects and the collective diffusion character in the Li-W(011) system,
Pis'ma Zh.Eksp.Teor.Fiz. **36**, p.73-75 (1982),
English translation in: JETP Lett.**36**, p.88 (1982).
43. I.F.Lyuksyutov,
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Zh.Eksp.Teor.Fiz. **83**, p.2281-2287 (1982),
English translation in: Sov.Phys.JETP **56**, p.1321-1324 (1982).
42. I.F.Lyuksyutov,
Two-dimensional anisotropic crystals,
Zh.Eksp.Teor.Fiz. **82**, p.1267-1275 (1982),
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Zh.Eksp.Teor.Fiz. **80**, p.2511-2518 (1981),
English translation in: Sov.Phys.JETP **53**, p.1317-1321 (1981).
39. I.F.Lyuksyutov, V.K.Medvedev and I.N.Yakovkin,
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English translation in: Sov.Phys.JETP **53**, p.1284-1287 (1981).
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Pis'ma Zh.Eksp.Teor.Fiz. **32**, p.593-595 (1980),
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35. I.F.Lyuksyutov,
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Zh.Eksp.Teor.Fiz. **75**, p.358-360 (1978),
English translation in: Sov.Phys.JETP **48**, p.178-179 (1978).
33. I.F.Lyuksyutov and V.L.Pokrovsky,
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Pis'ma Zh.Eksp.Teor.Fiz. **25**, p.419-21 (1977),
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Elastic anomalies near a phase transition point,
Zh.Eksp.Teor.Fiz. **73**, p.732-739 (1977),
English translation in: Sov.Phys.JETP **46**, p.383-387 (1977).

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Phys.Lett.A **56**, 135-136 (1976).
29. I.F.Lyuksyutov, V.L.Pokrovsky and D.E.Khmelnitsky,
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Zh.Eksp.Teor.Fiz. **69**, p.1817-1824 (1975),
English translation in: Sov.Phys.JETP **42**, p.923-926 (1975).
28. I.F.Lyuksyutov and V.L.Pokrovsky,
First order phase transitions in systems with cubic anisotropy,
Pis'ma Zh.Eksp.Teor.Fiz. **21**, p.22-25 (1975)
English translation in: JETP Lett.**21**, p.9-11 (1975).

INVENTION DISCLOSURES:

27. I. F. Lyuksyutov and D.G. Naugle,
Levitation Chip. TAMU, July 2004.
26. I. F. Lyuksyutov and D.G. Naugle,
Magnetic Microtrap for Capture of Micro/Nanoparticles and Macromolecules. TAMU, June 2003.

REFEREED PROCEEDINGS OF THE CONFERENCES, WORKSHOPS, SEMINARS:

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2D Bose glass in superconductors with correlated disorder.
Proceedings of the Statphys-18, pp. 217-219. Berlin, Germany. August 1992.
24. I. Lyuksyutov,
Domain wall structures in chemisorption systems,
Proceedings of the 10th International Seminar on Surface Physics, pp. 217-219 Przesieka, Poland, 1991.
23. I. Lyuksyutov,
Domain wall pinning by quenched surface disorder,
Proceedings of the Working Party on Surface Phase Transitions, Trieste, pp. 48-49, Italy, 1991.
22. T.Nattermann, I.Lyuksyutov and M.Schwartz,
Flux creep in two-dimensional vortex glasses near He1,
Proceedings of the International Conference on Physics in Two Dimensions. Neushatel, Switzerland, 1991.
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