

Greiner Walter

Position: Founding Director Frankfurt Institute for Advanced Studies

Period covered:



I Scientific Work

II Conferences and educational activities

Conferences and Other External Scientific Work

Very many

Work With Students

With very many

Diploma thesis supervision

Ph-thesis, all together more than 150

Work With Postdocs

More than 120 Alexander von Humboldt-fellows

III Service activities

Within ICRANet

Close collaboration with Prof. Ruffini

-many joint interests

-talks at Frankfurt and Pescara

IV 2007-2008 List of Publications

1. V.N.Tarasov, D.V.Tarasov, K.A.Gridnev, D.K.Gridnev, V.G.Kartavenko, W.Greiner, V.E.Mitroshin
Neutron-deficient and neutron-rich isotopes Fe and Ni near the drip-line
Notes of Russian Academy of Science N5, 2007
2. I.A.Solov'yov, Walter Greiner
Theoretical analysis of an iron mineral-based magnetoreceptor model in birds
Biophysical Journal 93, 2007 (1-17)
3. M.Tabrizi, A.V.Korol, A.V.Solov'yov and Walter Greiner
Feasibility of an electron-based crystalline undulator
Physical Rev. Letters 98,164801 (1-4), 2007 (physics/0611012)
4. Raj K.Gupta, Dalip Singh and Walter Greiner
Semiclassical and microscopic calculations of the spin-orbit density part of the Skyrme nucleus-nucleus interaction potential with temperature effects included
Physical Review C 75, 2007 (024603), 12pp
5. I. Pshenichnov, I. Mishustin, Walter Greiner,
MCHIT - Monte Carlo model for proton and heavy-ion therapy,
In Proc. International Conference on Nuclear Data for Science and
Technology ND2007, Nice, France, April 22-27, 2007,
arXiv:0705.0248v1 [physics.med-ph] 2 May 2007
6. M.Tabrizi, A.V.Korol, A.V.Solov'yov, Walter Greiner
An electron-based crystalline undulator
Journal of Physics G: Nuclear and Particle Physics 34, p.1581-1594, 2007
7. A.V.Korol, A.V.Solov'yov, Walter Greiner
Parameters of the crystalline undulator and its radiation for particular experimental conditions
Proceedings of the International Workshop "Channeling2006" Italy July 2006, SPIE 6634, 2007, arXiv: physics/0612020
8. T.J.Bürvenich, L.Guo, P.Klüpfel, P.-G.Reinhard, Walter Greiner
Proton-neutron deformations in ^{16}C and their consequences
Submitted Journals of Physics G, October 2007
9. B.K.Sharma, A.Shukla, P.Arumugam, P.D.Stevenson, S.K.Patra, Raj K.Gupta and Walter Greiner (fias)
Nuclear halo: A deformation effect
10. D.N.Poenaru, R.A.Gherghescu, A.V.Solov'yov, Walter Greiner
Liquid drop stability of a superdeformed prolate semi-spheroidal atomic cluster
Europhysics Letters (EPL) 79, (2007) 63001

11. Raj K. Gupta, Dalip Singh and Walter Greiner (fias)
Semiclassical and microscopic calculations of the spin-orbit density part of Skyrme nucleus-nucleus interaction potential with temperature effects included
Phys. Rev. C 75, 024603, 2007
12. Raj K. Gupta, S.K. Patra, P.D. Stevenson and Walter Greiner
A highly neutron-rich cluster and / or Superheavy nucleus in the Compound Nucleus $^{238}\text{U}+^{238}\text{U}$: A Mean Field Study
International Journal of Modern Physics E, Vol.16, No.6 (2007) 1721-1732
13. Thomas J. Buervenich, Igor N. Mishustin, and Walter Greiner
Nuclei embedded in an electron gas
Submitted to Phys. Rev. C
14. D.N. Poenaru, I-H. Plonski, Walter Greiner (fias)
Saddle point shapes of nuclei
Invited talk at the 6th General International Conference of the Balkan Physical Union (PBU-6) Istanbul, Turkey, August 22-26, 2006
American Institute of Physics Conference Proceedings vol. 899 (2007) 15-18
15. Raj K. Gupta, M. Manhas, S. Hofmann, Walter Greiner
Role of static deformation and compact orientation of target nucleus in measured fusion cross-section of $^{244}\text{Pu}+^{48}\text{Ca}$ reaction
Submitted in Phys. Rev. C, March 2007
16. S. Yu. Torilov, K.A. Gridnev, Walter Greiner
Chain configurations in the light nuclei
Accepted for publication in IJMPE in June 2007
17. P.O. Hess, Walter Greiner
Shift of the GKZ limit in the cosmic ray spectrum due to a smallest length scale
Journal of Physics G, 34, 2091-2098 2007
18. A.G. Lyalin, I.A. Solov'yov, A.V. Solov'yov, Walter Greiner
Stability of charged atomic clusters
Romanian Reports in Physics 2007, accepted
19. I. Pshenichnov, I. Mishustin, Walter Greiner
Comparative study of depth-dose distributions for beams of light and heavy nuclei in tissue-like media
Submitted to Physioics in Medicine and Biology, April 2007
20. P.O. Hess, Walter Greiner
Pseudo-complex field theory
Int.J.Mod.Phys.E16:1643-1679, 2007 (arXiv: 0705.1233[hep-th])

21. A.V. Yakubovich, I.A. Solov'yov, A.V. Solov'yov, Walter Greiner
Ab initio theory of alpha-helix \leftrightarrow coil phase transition
European Physical Journal D, 2007
22. I.A. Solov'yov, A.V. Yakubovich, A.V. Solov'yov, Walter Greiner
Alpha-helix \leftrightarrow Coil Phase Transition: Analysis of Ab Initio Theory Predictions
European Physical Journal D 2007
23. I.A. Solov'yov, A.V. Yakubovich, A.V. Solov'yov, Walter Greiner
Two-center-multipole expansion method: Application to macromolecular systems
Phys.Rev. E 75,051912 (2007), pp.1-9
24. Walter Greiner, V. Zagrebaev
Giant quasi-atoms and superheavy nuclei produced in damped collisions of transactinides
Int.J.Mod.Phys.D, Vol.16,Nos 2&3 (2007) 141-152
25. Thomas J. Bürvenich, Igor N. Mishustin, Walter Greiner
Nuclei embedded in an electron gas
Phys.Rev.C76:034310,2007, (arXiv: 0706.1450v1 [nucl-th] 2007)
26. O.I. Obolensky, V.V. Semenikhina, A.V. Solov'yov, W. Greiner
Interplay of electrostatic and van der Waals forces in dimer of coronene
International Journal of Quantum Chemistry 107, p.1335-1343, (2007)
27. A.G. Lyalin, I.A. Solov'yov, A.V. Solov'yov, W. Greiner
Interplay of Electronic and Geometric Shell Effects in Properties of Neutral and Charged Strontium Clusters
Phys.Rev. A 75,053201 (1-13), 2007
28. A.V. Yakubovich, I.A. Solov'yov, A.V. Solov'yov, Walter Greiner
Ab initio description of phase transitions in finite bio-nano systems
Europhysics News 38, p.10, 2007
29. P.O. Hess, Walter Greiner
Extending the GKZ limit without breaking Lorentz Invariance
30. I.A. Solov'yov, Walter Greiner
Towards an understanding of the mechanism of magnetoreceptor in birds
submitted in EPJ
31. S.K. Patra, Raj K. Gupta, B.K. Sharma, P.D. Stevenson, Walter Greiner
Exotic clustering in heavy and superheavy nuclei within the relativistic and non-relativistic mean field formalisms
Journal of Phys. G: Nuclear Particle Physics, 34 (2007) 2073-2090
32. Walter Greiner

A new insight in the decay modes of heavy nuclei
Romanian Reports in Physics, Vol. 59, No 2, 193-204, 2007

33.Raj K.Gupta, S.K.Patra, P.D.Stevenson, C.Beck, Walter Greiner
Fission of hyper-hyperdeformed ^{56}Ni : a clustering analysis with in mean-field approaches
Submitted Phys. Rev. C, October 2007

34.O.I.Obolensky, E.Surdutovich, I.Pshenichnov, I.Mishustin, A.V.Solov'yov, Walter Greiner
Ion beam cancer therapy: fundamental aspects of the problem
Submitted October 2007

35.A.Kostyuk, A.V.Korol, A.V.Solov'yov, Walter Greiner
The influence of the structure imperfectness of a crystalline undulator of the emission spectrum

36.A.Kostyuk, A.V.Korol, A.V.Solov'yov, Walter Greiner
One-dimensional Model of a Gamma Klystron
Submitted October 2007

37.Reflections on my youth and early years in science - final remarks - thank you!
Walter Greiner (Frankfurt U., FIAS) . 2007. 7pp.
Prepared for International Symposium on Heavy Ion Physics 2006 (ISHIP 2006),
Frankfurt, Germany, 3-6 Apr 2006.
Published in Int.J.Mod.Phys.E16:1285-1291,2007.

38.D.N.Poenaru, Walter Greiner
A variational method for equilibrium nuclear phase.
Invited talk, Proc. Predeal International Summer school on Collective motion and phase transitions in nuclear systems. Ed. A.A. Raduta et al (World Scientific, New Jersey, 2007)
pp.44-61

39.I. A.Solov'yov and W. Greiner
Theoretical analysis of an iron mineral-based magnetoreceptor model in birds
Biophysical Journal, 93, 1493-1509 (2007).

40.Model of binding alpha-particles and structure of the light nuclei.
K.A. Gridnev, S.Yu. Torilov (St. Petersburg State U.) , V.G. Kartavenko (Dubna, JINR) , W. Greiner (Frankfurt U., FIAS) . 2007. 6pp.
Prepared for International Symposium on Heavy Ion Physics 2006 (ISHIP 2006),
Frankfurt, Germany, 3-6 Apr 2006.
Published in Int.J.Mod.Phys.E16:1059-1064,2007.

41.Heavy particle radioactivities.
D.N. Poenaru, R.A. Gherghescu (Bucharest, IFIN-HH & Frankfurt U., FIAS) , I.H. Plonski (Bucharest, IFIN-HH) , W. Greiner (Frankfurt U., FIAS) . 2007. 13pp.

Prepared for International Symposium on Heavy Ion Physics 2006 (ISHIP 2006),
Frankfurt, Germany, 3-6 Apr 2006.
Published in Int.J.Mod.Phys.E16:995-1007,2007.

42.Collisions of transactinides: Superheavy nuclei and giant nuclear molecules.
Valery Zagrebaev (Dubna, JINR) , Walter Greiner (Frankfurt U.) . 2007. 13pp.
Prepared for International Symposium on Heavy Ion Physics 2006 (ISHIP 2006),
Frankfurt, Germany, 3-6 Apr 2006.
Published in Int.J.Mod.Phys.E16:969-981,2007.

43.2nd International Workshop on Astronomy and Relativistic Astrophysics (IWARA
2005): Proceedings.
Bardo E.J. Bodmann, (ed.), Cesar A.Z. Vasconcellos, (ed.), Heli o T. Coelho, (ed.), Dimi ter
Hadjimichef, (ed.) (Rio Grande do Sul U.) , Walter Greiner, (ed), Horst Stucker, (ed.)
(Frankfurt U., FIAS) . Feb 2007.
Published in Int.J.Mod.Phys.D16, nos. 2-3, Feb 2007

44.Equilibration of matter in relativistic heavy-ion collisions.
L. Bravina, I. Arsene, M.S. Nilsson, K. Tywoniuk (Oslo U.) , E. Zabrodin (Oslo U. & Moscow
State U.) , M. Bleicher (Frankfurt U.) , H. Stocker (Frankfurt U. & Frankfurt U., FIAS) , W.
Greiner (Frankfurt U., FIAS) . 2007. 10pp.
Prepared for International Symposium on Heavy Ion Physics 2006 (ISHIP 2006),
Frankfurt, Germany, 3-6 Apr 2006.
Published in Int.J.Mod.Phys.E16:777-786,2007.

45.Conference summary: Final remarks.
Walter Greiner (Frankfurt U.) . 2007. 25pp.
Prepared for International Conference on Nucleus-Nucleus Collisions, Rio de Janeiro,
Brazil, 28 Aug - 1 Sep 2006.
Published in Nucl.Phys.A787:648-672,2007.

46.Clusters of matter and antimatter.
W. Greiner (Frankfurt U.) . 2007. 11pp.
Prepared for 2nd Cairo International Conference on High Energy Physics (CICHEP 2),
Cairo, Egypt, 14-17 Jan 2006.
Published in AIP Conf.Proc.881:156-166,2007. Also in *Cairo 2006, High energy physics*
156-166

47.V.I. Zagrebaev, V.V. Samarin (Dubna, JINR) , Walter Greiner (Frankfurt U., FIAS) .
Sub-barrier fusion of neutron-rich nuclei and its astrophysical consequences.
Published in Phys.Rev.C75:035809,2007. 11pp

48.Zagrebaev V, Karpov A, Aritomo Y, Naumenko, M., Greiner, Walter
Potential energy of a heavy nuclear system in fusion-fission processes
Physics of Particles and Nuclei 38 (4): 469-491 JUL 2007

49.Zagrebaev V, Greiner W
Superheavy nuclei and giant quasi-atoms
Nuclear Physics A 787: 363C-372C, 2007

50.Zagrebaev V, Greiner W
Low-energy collisions of heavy nuclei: dynamics of sticking, mass transfer and fusion
Journal of Physics G: Nuclear and Particle Physics 34 (1): 1-25 2007

51.Walter Greiner
A New Insight in the Decay Modes of Heavy Nuclei
Dedicated to Prof. Dorin N. Poenaru's 70th Anniversary
Romanian Reports in Physics, Vol.59, No. 2, 193-204, 2007