

**Publications in scientific journals:**

**Zohm H., Angioni C., Arslanbekov R., Atanasiu C.V., et al.**, “Overview of ASDEX Upgrade results”, Nucl. Fusion 43 (2003) 1570. Lipsa titlul lucrării.

**Atanasiu C.V., Günter S., Lackner K., Miron I.G.**, “Analytical solutions to the Grad-Shafranov equation” (submitted to Phys. Plasmas, 2003, PoP #27721)

**Atanasiu C.V., Günter S., Lackner K., Moraru A., Subbotin A.A.**, “Boundary conditions for equilibrium and tearing modes calculation in diverted tokamak configurations” (submitted to Phys. Plasmas, 2004)

**Spineanu F., Vlad M.**, “Soliton modulation of the turbulence envelope and plasma rotation”, Physical Review Letters 89 (2002) 185001, 1-4.

**Spineanu F., Itoh K., Itoh S.-I., Vlad M.**, “Pole dynamics for the Flierl-Petviashvili equation and zonal flows”, electronic preprint arXiv.org/Physics/0305139 (submitted to Physical Review Letters, 2003)..

**Spineanu F., Vlad M.**, “Self-duality of the relaxation states in fluids and plasmas”, Physical Review E 67 (2003), 046309.

**Spineanu F., Vlad M.**, “Exact vortex solution of the Jacobs-Rebby equation for ideal fluids”, electronic preprint arXiv.org/Physics/0310027; (submitted to Physica D, 2003). .

**Itoh K., Itoh S.-I., Spineanu F., Vlad M., Kawasaki M.**, “On transition in plasma turbulence with multiple-scale lengths”, Plasma Physics and Controlled Fusion 45 (2003), 911.

**Spineanu F., Vlad M., Itoh K., Itoh S.-I.**, “Barrier crossing and asymptotic states in metastable turbulence”, (submitted to Journal of the Physical Society of Japan, 2003)..

**Misguich J. H., Reuss J.-D., Constantinescu D., Steinbrecher G., Vlad M., Spineanu F., Weysow B., Balescu R.**, “Noble internal transport barriers and radial subdiffusion of toroidal magnetic lines”, Annales de Physique 28, No.6 (2003) 1.

**Spineanu F.**, “Stationary integrable states of ion instabilities : lecture notes on integrability in plasma theory”, NIFS preprint.

**Anton L., Geyer H.B.**, “Pattern formation in a metastable, gradient-driven sandpile”, electronic preprint arXiv.org/ cond-mat/0103056, Physical Review E (2003), in print.

**Plakida N.M., Anton L., Adam S., and Adam Gh.**, “Exchange and spin-fluctuation mechanisms of superconductivity in cuprates”, electronic preprint arXiv.org/ cond-mat/0104234 ; JETP 97, (2003), 331.

**Vlad M., Spineanu F.**, “Trajectory structures and transport”, (submitted to Physical Review E, 2003)..

**Vlad M., Spineanu F.**, “Trajectory structures and anomalous transport”, Physica Scripta (2003) in print.

**Vlad M., Spineanu F., Misguich J. H., Balescu R.**, “Magnetic line trapping and effective transport in stochastic magnetic fields”, Physical Review E 67 (2003) 026406.

**Vlad M., Spineanu F., Misguich J. H., Reuss J.-D., Balescu R., Itoh K., Itoh S.-I.**, “Lagrangian versus Eulerian correlations and transport scaling”, (submitted to Plasma Physics and Controlled Fusion, 2003)..

**Pometescu N.**, “Formal expression of the radial particle flux in a turbulent plasmas in the presence of the rf heating”, Physics AUC, 13 (2003), 110.

**Steinbrecher G.**, “*Statistical aspects of the perturbation theory*”, Physics AUC, 13(2003), 167.

**Steinbrecher G.**, “*Absence of Stable Transport Barriers in Perturbed Ergodic Dynamical Systems*”, Physics AUC, 12 (2003), 105.

**Steinbrecher G.**, “*Improved numerical methods for combined phase space structure and entropy measurement of the area preserving maps*”, Physics AUC, 13 (2003), 171.

**Negrea M., Petrisor I. and Balescu R.**, “*Intrinsic trapping of stochastic sheared magnetic field lines*”, (submitted to Physical Review E, 2003, EJ9117).

**Negrea M., Petrisor I. and Weyssow B.**, “*On revisited models on L-H transition in tokamak plasmas*”, (submitted to Journal of Plasma Physics, 2003).

**Petrisor E., Misguich J.H., Constantinescu D.**, “*Reconnection and barrier formation in a non-twist map for toroidal magnetic field lines*”, Chaos, Solitons and Fractals, 18, 5 (2003), 1085.

**Petrisor E., Misguich J.H., Constantinescu D.**, “*Destruction of invariant circles and transport barrier location in the dynamics of non-twist maps*”, (submitted to Chaos, Solitons and Fractals, 2003).

**Constantinescu D., Misguich J.H., Petrisor E.**, “*The evolution of the transport barriers in a reversed shear model for the magnetic field lines dynamics in Tokamak*” (to be submitted for publication).

**Constantinescu D.**, “*The effects of some control techniques on the transport barriers in area preserving maps*”, (submitted to Int. Journ. of Chaos Theory and Applications, 2003).

**Pometescu N.**, “*Formal expression of the radial particle flux in a turbulent plasmas in the presence of the rf heating*”, Physics AUC, 13 (2003), 110.

**Steinbrecher G.**, “*Statistical aspects of the perturbation theory*”, Physics AUC, 13(2003), 167.

**Weyssow B., Steinbrecher G.**, “*Generalized Randomly Amplified Linear System Driven by Gaussian Noise. Extreme Heavy Tail and Algebraic Correlation Decay in Plasma Turbulence*”, Phys. Rev. Letters, 92,125003-1, 2004. Presented at International Working Session of the B.F.R. Fusion Group, C.E.A.s Cadarache, France, November, 2003.

**Steinbrecher G.**, “*Improved numerical methods for combined phase space structure and entropy measurement of the area preserving maps*”, Physics AUC, 13 (2003), 171.

**Negrea M., Petrisor I. and Balescu R.**, “*Intrinsic trapping of stochastic sheared magnetic field lines*”, (submitted to Physical Review E, 2003, EJ9117). Negrea M., Petrisor I., Presented at International Working Session of the B.F.R. Fusion Group, C.E.A. Cadarache, France, November, 2003.

**Negrea M., Petrisor I. and Weyssow B.**, “*On revisited models on L-H transition in tokamak plasmas*”, (submitted to Journal of Plasma Physics, 2003).

**Petrisor E., Misguich J.H., Constantinescu D.**, “*Reconnection and barrier formation in a non-twist map for toroidal magnetic field lines*”, Chaos, Solitons and Fractals, 18, 5 (2003), 1085.

**Petrisor E., Misguich J.H., Constantinescu D.**, “*Destruction of invariant circles and transport barrier location in the dynamics of non-twist maps*”, (submitted to Chaos, Solitons and Fractals, 2003).

**Constantinescu D., Misguich J.H., Petrisor E.**, “*The evolution of the transport barriers in a reversed shear model for the magnetic field lines dynamics in Tokamak*” (to be submitted for publication).

**Constantinescu D.**, “*The effects of some control techniques on the transport barriers in area preserving maps*”, (submitted to Int. Journ. of Chaos Theory and Applications, 2003).

**Corre Y. et al.**, “*Radiated power and impurity concentrations in the EXTRAP T2R reversed-field pinch*”, (submitted to Plasma Phys. and Contr. Fusion, 2003)

**Sporea D.**, “*Study of uncertainties in laser diodes parameters evaluation*”, paper to be submitted for publication.

**Sporea D. and Florean A.**, “*Investigations on the degradation of visible laser diodes under gamma-ray irradiation*”, Fusion Engineering and Design, 66-68, (2003), 877.

**Avrighianu M., W. von Oertzen, Plompen A.J.M., and Avrighianu V.**, “*Optical model potentials for  $\alpha$ -particles scattering around the Coulomb barrier on  $A \sim 100$  nuclei*”, Nucl. Phys. A723, (2003), 104.

**Semkova V., Avrighianu V., Glodariu T., Koning A.J., Plompen A.J.M., Smith D.L. and Sudar S.**, “*A systematic investigation of  $(n, xp)$  reactions up to 20 MeV on Ni isotopes*”, Nucl. Phys. A730, (2004), 255.

**Reimer P., Plompen A.J.M., Qaim S.M., Weigmann H., Filatenkov A.A., Chuvaev S., Koning A., Glodariu T. and Avrighianu V.**, “*Reaction mechanisms of fast neutrons on stable Mo isotopes below 21 MeV*”, (to be submitted for publication).  
[http://tandem.nipne.ro/~vavrig/Publications/2003/papmo\\_1z.ps](http://tandem.nipne.ro/~vavrig/Publications/2003/papmo_1z.ps)

**Craciunescu T.**, “*Applications of Computerized Tomography in Nuclear Physics*”, Phd. Thesis, 2002.

**Avrighianu M., Fischer U., and Avrighianu V.** (to be submitted for publication).

**Avrighianu M., W. von Oertzen, Plompen A.J.M., and Avrighianu V.**, Nucl. Phys. A723, 104 (2003).

#### **Contributions to conferences and workshops:**

**Atanasiu C.V, Günter S., Lackner K., Miron I.G.**, “*Analytical solutions to the Grad-Shafranov equation for diverted plasmas*”, 30<sup>th</sup> Conference on Controlled Fusion and Plasma Physics, St. Petersburg, Russia, July. 2003.

**Atanasiu C.V, Günter S., Lackner K., Miron I.G.**, “*Exact solutions to the Grad-Shafranov equation for toroidal plasmas*”, 12<sup>th</sup> Conference on Plasma Physics and Applications, Iassy, Romania, September, 2003.

**Spineanu F., Vlad M.**, “*Coherent structures and soft non-integrability of plasma models*”, International Topical Conference on Plasma Physics : Complex Plasmas in the New Millenium, 8-12 September 2003, Santorini Island, Greece.

**Spineanu F., Vlad M., Itoh K., Itoh S.-I.**, “*Vortical structures in stationary turbulence*”, 13<sup>th</sup> International Toki Conference on Plasma Physics and Controlled Nuclear Fusion, Progress in Plasma Theory and Understanding of Fusion Plasmas, 9-12 decembrie 2003, Toki, Japan, invited paper.

**Spineanu F., Vlad M., Itoh K., Itoh S.-I.**, “*Exact periodic solution of the stationary Hasegawa-Mima equation*”, 13<sup>th</sup> International Toki Conference on Plasma Physics and

Controlled Nuclear Fusion, Progress in Plasma Theory and Understanding of Fusion Plasmas, 9-12 decembrie 2003, Toki, Japan.

**Vlad M., Spineanu F.**, “*Trajectory structures and anomalous transport*”, International Topical Conference on Plasma Physics : Complex Plasmas in the New Millenium, 8-12 September 2003, Santorini Island, Greece, *invited paper*.

**Vlad M., Spineanu F., Misguich J. H., Balescu R., Itoh K., Itoh S.-I.**, “*Turbulence spectrum and transport scaling*”, 13<sup>th</sup> International Toki Conference on Plasma Physics and Controlled Nuclear Fusion, Progress in Plasma Theory and Understanding of Fusion Plasmas, 9-12 decembrie 2003, Toki, Japan.

**Vlad M., Spineanu F., Itoh K., Itoh S.-I.**, “*Intermittent and global transitions in plasma turbulence*”, Romanian Reports in Physics, in print.

**Pometescu N.**, “*Radial fluxes in a turbulent non-ohmic plasmas: an ion cyclotron resonance heating case*”, International Working Session of the B.F.R.Fusion Group, C.E.A.Cadarache, France,

**Weysow B., Steinbrecher G.**, “*Generalized Randomly Amplified Linear System Driven by Gaussian Noise. Extreme Heavy Tail and Algebraic Correlation Decay in Plasma Turbulence*”, Phys. Rev. Letters, 92,125003-1, 2004. Presented at International Working Session of the B.F.R. Fusion Group, C.E.A.s Cadarache, France, November, 2003.

**Constantinescu D.**, “*The study of the transport barrier evolution in some Hamiltonian models for the magnetic field lines dynamics in TOKAMAK*”, Presented at International Working Session of the B.F.R. Fusion Group, C.E.A. Cadarache, France, November 2003.

**Pometescu N.**, “*Radial fluxes in a turbulent non-ohmic plasmas: an ion cyclotron resonance heating case*”, International Working Session of the B.F.R.Fusion Group, C.E.A.Cadarache, France, November, 2003.

**Constantinescu D.**, “*The study of the transport barrier evolution in some Hamiltonian models for the magnetic field lines dynamics in TOKAMAK*”, Presented at International Working Session of the B.F.R. Fusion Group, C.E.A. Cadarache, France, November 2003.

**Negrea M., Petrisor I.**, Presented at International Working Session of the B.F.R. Fusion Group, C.E.A. Cadarache, France, November, 2003.

**Stancalie V. and Rachlew E.**, “*Radiation from Hydrogen atoms as related to the modeling of the EXTRAP T2R plasma*”, 23<sup>rd</sup> International Conference on Photonic, Electronic, and Atomic Collisions, July, 2003.

**Corre Y. et al.**, “*Radiated power and impurity concentrations in the EXTRAP T2R reversed-field pinch*”, 30<sup>th</sup> EPS Conference on Controlled Fusion and Plasma Physics, St. Petersburg, July, 2003, ECA. 27A, P-3.221

**Sporea D.**, “4<sup>th</sup> Meeting of the ITPA Topical Group on Diagnostics”, Padova, Italy, 2003.

**Sporea D.**, “*Gamma-ray induced absorption in optical fibers used for plasma diagnostics*”, 2003 IEEE International Conference on Plasma Science, Jeju, Korea, June, 2003..

**Avrigeanu V.**, “*Report on EAF related tools*”, Workshop of the OECD-NEA WPEC Subgroup 19 on Activation Cross Sections, IRMM, Geel, Belgium, January, 2003.  
<http://tandem.nipne.ro/~vavrig/Conferences/2003/WWPECVA.DOC>

**Avrighianu M.**, “Semi-microscopic optical potentials for applications”, as above, <http://tandem.nipne.ro/~vavrig/Conferences/2003/WWPECMA.DOC>

**Tiseanu I., Sauerwein C., Simon M., Misawa M.**, “High-Resolution X-ray Tomography for Nuclear Applications and Research”, Annual Meeting of Nuclear Technology, Stuttgart, Germany, May, 2002.

**Misawa M., Tiseanu I., Hirashima R., Koizumi K., Ikeda Y.**, “Oblique view cone-beam tomography for inspection of flat-shape objects”, 11<sup>th</sup> Asia-Pacific Conference on Nondestructive Testing (APCNDT), Jeju, Korea, November, 2003.

**Avrighianu M., Avrighianu V., Duma M., W. von Oertzen, and Plompen A.J.M.**, in Proc. Workshop on New Applications of Nuclear Fission, Bucharest, September, 2003 (in press).

**Sporea D., Vata I., Dudu D. and Danis A.**, “Neutron degradation of UV enhanced optical fibers for fusion installations plasma diagnostics”, 11<sup>th</sup> International Conference on Fusion Reactor Materials (ICFRM-11), Kyoto, December, 2003, (submitted for publication at J. Nuclear Materials).

**Sporea D.**, “UV radiation, gamma-ray and neutron irradiation effects on UV enhanced transmission optical fibers for plasma diagnostics”, Report of the 13<sup>th</sup> IEA Workshop on Radiation Effects in Ceramic Insulators, December, Kyoto, 2003, , JAERI - Review 2004-004, March 2004.

### **Reports:**

**Avrighianu V. and Avrighianu M.**, “Progress report on development of theoretical tools and their use to calculate cross sections relevant to the EAF and EFF files”, Report EFFDOC-854, NEA/OECD, Paris, April, 2003.

**Avrighianu V., Avrighianu M., Aiftimie C. and Duma M.**, “Progress report on development of theoretical tools and their use to calculate cross sections relevant to the EAF and EFF files”, Report EFFDOC-880, NEA/OEC

**Avrighianu V., Aiftimie C., Avrighianu M., and Duma M.**, “Analiza reactiilor induse de neutroni rapizi. Instalarea codului de model statistic pentru reactii nucleare EMPIRE-II@DFN/IFIN-HH” (in Romanian), Report CERES No. 66 /2003-10-01, IFIN-HH.

**Tiseanu I., Mandache N.B., Craciunescu T., Ganciu M., Gherendi F., Nistor M., Zoita V.**, “Development of micro-tomography system: Design, fabrication and test”, Final Report, EFDA TW0-TTMI-003, 2003.

**Avrighianu M., Fischer U., Pereslvtsev P.E., and Avrighianu V.**, Report EFFDOC-887, NEA/OECD Paris, 2003.

**Avrighianu M., Fischer U., Pereslvtsev P.E., and Avrighianu V.**, Report EFFDOC-887, NEA/OECD Paris, 2003.