



# Physics

## Authors and titles for Jun 2011, skipping [first 75](#)

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[76] [arXiv:1106.0934](#) [[pdf](#), [ps](#), [other](#)]

### Phase transition in the Sznajd model with independence

[K. Sznajd-Weron](#), [M. Tabiszewski](#), [A. M. Timpanaro](#)

Subjects: **Physics and Society (physics.soc-ph)**; Social and Information Networks (cs.SI)

[77] [arXiv:1106.0939](#) [[pdf](#)]

### Ultrafast Internal Conversion in Ethylene I. The Excited State Lifetime

[H. Tao](#), [T. K. Allison](#), [T. W. Wright](#), [A. M. Stooke](#), [C. Khurmi](#), [J. van Tilborg](#), [Y. Liu](#), [R. W. Falcone](#), [A. Belkacem](#), [T. J. Martinez](#)

Journal-ref: J. Chem. Phys, volume 134, page 244306 (2011)

Subjects: **Chemical Physics (physics.chem-ph)**; Atomic Physics (physics.atom-ph)

[78] [arXiv:1106.0959](#) [[pdf](#), [ps](#), [other](#)]

### Doppler-free two-photon resonances for atom detection and sum frequency stabilization

[A. M. Akulshin](#), [B. V. Hall](#), [V. Ivannikov](#), [A. A. Orel](#), [A. I. Sidorov](#)

Comments: 12 pages, 6 figures

Subjects: **Atomic Physics (physics.atom-ph)**

[79] [arXiv:1106.0973](#) [[pdf](#)]

### Quantum Physics and Nanotechnology

[Vladimir K. Nevolin](#)

Comments: 51 pages, 7 figures

Subjects: **General Physics (physics.gen-ph)**

[80] [arXiv:1106.0977](#) [[pdf](#)]

### Self-Stimulated Undulator Klystron

[E.G. Bessonov](#), [A.L. Osipov](#) (Lebedev Phys. Inst. RAS, Moscow, Russia), [A.A. Mikhailichenko](#) (Cornell University, CLASSE, Ithaca, NY, U.S.A)

Comments: 5 pages, 2 figures

Subjects: **Accelerator Physics (physics.acc-ph)**

[81] [arXiv:1106.0982](#) [[pdf](#)]

### Role of Azimuthal Energy Flows in the Geometric Spin Hall Effect of Light

[Aleksandr Bekshaev](#)

Comments: 6 pages, 2 figures. This note was prepared in response to the paper A. Aiello et al, Phys. Rev. Lett. 2009, 103, 100401, but was not published because I could not properly substantiate generalization of the energy redistribution rules for the case of spin flow (Eqs. (14)). However, I feel the interest to the idea and now I present it for wide audience

Subjects: **Optics (physics.optics)**

[82] [arXiv:1106.0985](#) [[pdf](#), [other](#)]

## **A simple eddy viscosity formulation for turbulent boundary layers near smooth walls**

[Rafik Absi](#) (EBI)

Journal-ref: C. R. Mecanique 337, 4 (2009) 158-165

Subjects: **Fluid Dynamics (physics.flu-dyn)**

[83] [arXiv:1106.0986](#) [[pdf](#)]

## **Toward Improving Prediction of Sediment Transport over Wave-Induced Ripples**

[Rafik Absi](#) (EBI), [Hitoshi Tanaka](#)

Journal-ref: Tohoku Journal of Natural Disaster Science 47 (2011) 213-218

Subjects: **Geophysics (physics.geo-ph)**; Fluid Dynamics (physics.flu-dyn)

[84] [arXiv:1106.1025](#) [[pdf](#), [ps](#), [other](#)]

## **Gauss-Bonnet holographic superconductors with magnetic field**

[M. R. Setare](#), [D. Momeni](#)

Comments: 9 pages, 4 figures. Accepted for publication by EPL

Journal-ref: EPL, 96 (2011) 60006

Subjects: **General Physics (physics.gen-ph)**

[85] [arXiv:1106.1043](#) [[pdf](#)]

## **A Non-linearized PLS Model Based on Multivariate Dominant Factor for Laser-induced Breakdown Spectroscopy Measurements**

[Zhe Wang](#), [Jie Feng](#), [Lizhi Li](#), [Weidou Ni](#), [Zheng Li](#)

Comments: LIBS, partial least square, quantitative measurement; laser diagnostics

Subjects: **Optics (physics.optics)**

[86] [arXiv:1106.1046](#) [[pdf](#), [ps](#), [other](#)]

## **Local and nonlocal pressure Hessian effects in real and synthetic fluid turbulence**

[Laurent Chevillard](#), [Emmanuel Leveque](#), [Francesco Taddia](#), [Charles Meneveau](#), [Huidan Yu](#), [Carlos Rosales](#)

Comments: 10 pages, 4 figures, minor changes, final version, published in Phys. Fluids

Journal-ref: Phys. Fluids 23, 095108 (2011)

Subjects: **Fluid Dynamics (physics.flu-dyn)**; Chaotic Dynamics (nlin.CD)

[87] [arXiv:1106.1050](#) [[pdf](#), [ps](#), [other](#)]

## **A reliable cw Lyman- $\alpha$ laser source for future cooling of antihydrogen**

[D. Kolbe](#), [A. Beczkowiak](#), [T. Diehl](#), [A. Koglbauer](#), [M. Sattler](#), [M. Stappel](#), [R. Steinborn](#), [J. Walz](#)

Comments: 8 pages, 3 figures, Proceedings of LEAP 2011

Subjects: **Optics (physics.optics)**; Atomic Physics (physics.atom-ph)

[88] [arXiv:1106.1055](#) [[pdf](#), [ps](#), [other](#)]

## **Comparing large lecture mechanics curricula using the Force Concept Inventory: A five thousand student study**

[Marcos D. Caballero](#), [Matthew A. Kohlmyer](#), [Edwin F. Greco](#), [Eric R. Murray](#), [Keith R. Bujak](#), [M. Jackson Marr](#), [Richard Catrambone](#), [Michael F. Schatz](#)

Comments: 21 pages, 4 figures, submitted to Am. J. Phys

Subjects: **Physics Education (physics.ed-ph)**

[89] [arXiv:1106.1065](#) [[pdf](#), [ps](#), [other](#)]

## **WKB - Not So Bad After All**

[Chung-Sang Ng](#)

Comments: This was an unpublished paper I wrote when I was a grad student at Auburn University

Subjects: **Plasma Physics (physics.plasm-ph)**

[90] [arXiv:1106.1074](#) [pdf]

## Fractal dimension evolution and spatial replacement dynamics of urban growth

[Yanguang Chen](#)

Comments: 17 pages, 5 figures, 2 tables

Subjects: **Physics and Society** ([physics.soc-ph](#))

[91] [arXiv:1106.1076](#) [pdf]

## Calculation technique for simulation of wave and fracture dynamics in a reinforced sheet

[M. Ayzenberg-Stepanenko](#), [Z. Yanovitsky](#), [G. Osharovich](#)

Comments: 16 pages, 7 figures

Subjects: **Computational Physics** ([physics.comp-ph](#)); Mesoscale and Nanoscale Physics ([cond-mat.mes-hall](#)); Materials Science ([cond-mat.mtrl-sci](#)); Mathematical Physics ([math-ph](#))

[92] [arXiv:1106.1081](#) [pdf]

## Can large ( $M \geq 8$ ) EQs be triggered by tidal ( $M1$ ) waves? An analysis of the global seismicity that occurred during 1901 - 2011

[C. Thanassoulas](#), [V. Klentos](#), [G. Verveniotis](#), [N. Zymaris](#)

Comments: 8 pages, 13 figures, [this http URL](#)

Subjects: **Geophysics** ([physics.geo-ph](#))

[93] [arXiv:1106.1096](#) [pdf, other]

## A new design for the CERN-Fréjus neutrino Super Beam

[A. Longhin](#)

Comments: 11 pages, 18 figures, 2 tables

Subjects: **Accelerator Physics** ([physics.acc-ph](#)); High Energy Physics - Experiment ([hep-ex](#))

[94] [arXiv:1106.1124](#) [pdf, ps, other]

## In search of continuity: thoughts of an epistemic empiricist

[Ian T. Durham](#)

Comments: 10 pages, awarded Fourth Prize in the 2011 FQXi Essay contest, "Is Reality Digital or Analog?"

Subjects: **History and Philosophy of Physics** ([physics.hist-ph](#)); Quantum Physics ([quant-ph](#))

[95] [arXiv:1106.1129](#) [pdf, ps, other]

## A model of driven and decaying magnetic turbulence in a cylinder

[Koen Kemel](#), [Axel Brandenburg](#), [Hantao Ji](#)

Comments: 7 pages, 4 figures, submitted to Phys. Rev. E

Journal-ref: Phys. Rev. E 84, 056407 (2011)

Subjects: **Plasma Physics** ([physics.plasm-ph](#)); Computational Physics ([physics.comp-ph](#))

[96] [arXiv:1106.1135](#) [pdf]

## Frictional damping in radiative electrodynamics and its scaling to macroscopic systems

[D. Das](#)

Comments: 11 pages including 5 references, No figures

Subjects: **Classical Physics** ([physics.class-ph](#))

[97] [arXiv:1106.1155](#) [pdf, ps, other]

## Koopmans' theorem in statistical Hartree-Fock theory

[Jean-Christophe Pain](#)

Comments: submitted to J. Phys. B: At. Mol. Opt. Phys

Subjects: **Atomic Physics** ([physics.atom-ph](#)); Quantum Physics ([quant-ph](#))

[98] [arXiv:1106.1163](#) [pdf]

# Plane waves in a moving medium and the Lorentz covariance of Minkowski's photon and electromagnetic momentum-energy four-vectors

[Changbiao Wang](#)

Comments: (1) Sec. V is revised, with some comments added on the conventional understanding of the EM momentum of static crossed electric and magnetic fields (see Example 3 on p. 7); (2) Eq. (60) is added to show a correct EM momentum; 3 Two new references (37 and 38) are added; 4 "EM-field cell" is used, which becomes "photon" when Einstein light-quantum hypothesis is imposed. 19 pages, 1 figure

Subjects: **General Physics (physics.gen-ph)**

[99] [arXiv:1106.1195](#) [[pdf](#)]

## The Curious Case of Lemaitre's Equation No. 24

[Sidney van den Bergh](#)

Comments: JRASC, in press

Subjects: **History and Philosophy of Physics (physics.hist-ph)**; Cosmology and Extragalactic Astrophysics (astro-ph.CO)

[100] [arXiv:1106.1217](#) [[pdf](#), [ps](#), [other](#)]

## A high dynamic range data acquisition system for a solid-state electron Electric Dipole Moment experiment

[Young Jin Kim](#), [Brandon Kunkler](#), [Chen-Yu Liu](#), [Gerard Visser](#)

Comments: 9 pages, 13 figures, 1 table

Subjects: **Instrumentation and Detectors (physics.ins-det)**; Nuclear Experiment (nucl-ex)

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