



# Physics

## Authors and titles for Jun 2011, skipping **first 50**

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[51] [arXiv:1106.0656](#) [[pdf](#)]

### Teaching Fluid Mechanics for Undergraduate Students in Applied Industrial Biology: from Theory to Atypical Experiments

[Rafik Absi](#) (EBI), [Caroline Nalpace](#) (EBI), [Florence Dufour](#) (EBI), [Denis Huet](#) (EBI), [Rachid Bennacer](#) (ENS Cachan), [Tahar Absi](#) (LPE)

Journal-ref: International Journal of Engineering Education 27, 3 (2011) 550-558

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

[52] [arXiv:1106.0674](#) [[pdf](#), [ps](#), [other](#)]

### Stochastic theory of protein synthesis and polysome: ribosome profile on a single mRNA transcript

[Ajeet K. Sharma](#), [Debashish Chowdhury](#)

Comments: Minor revision

Journal-ref: Journal of Theoretical Biology, vol.289, 36-46 (2011)

Subjects: **Biological Physics** ([physics.bio-ph](#)); Statistical Mechanics ([cond-mat.stat-mech](#)); Subcellular Processes ([q-bio.SC](#))

[53] [arXiv:1106.0694](#) [[pdf](#), [ps](#), [other](#)]

### Nuclear recoil scintillation and ionisation yields in liquid xenon from ZEPLIN-III data

[M. Horn](#), [V. A. Belov](#), [D. Yu. Akimov](#), [H. M. Araújo](#), [E. J. Barnes](#), [A. A. Burenkov](#), [V. Chepel](#), [A. Currie](#), [B. Edwards](#), [C. Ghag](#), [A. Hollingsworth](#), [G. E. Kalmus](#), [A. S. Kobayakin](#), [A. G. Kovalenko](#), [V. N. Lebedenko](#), [A. Lindote](#), [M. I. Lopes](#), [R. Lüscher](#), [P. Majewski](#), [A. StJ. Murphy](#), [F. Neves](#), [S. M. Paling](#), [J. Pinto da Cunha](#), [R. Preece](#), [J. J. Quenby](#), [L. Reichhart](#), [P. R. Scovell](#), [C. Silva](#), [V. N. Solovov](#), [N. J. T. Smith](#), [P. F. Smith](#), [V. N. Stekhanov](#), [T. J. Sumner](#), [C. Thorne](#), [L. de Viveiros](#), [R. J. Walker](#)

Comments: 7 pages, 7 figures

Subjects: **Instrumentation and Detectors** ([physics.ins-det](#)); High Energy Physics - Experiment ([hep-ex](#))

[54] [arXiv:1106.0702](#) [[pdf](#), [ps](#), [other](#)]

### Less is Different: Emergence and Reduction Reconciled

[Jeremy Butterfield](#)

Comments: 75 pp

Journal-ref: Foundations of Physics: Volume 41, Issue 6 (2011), Page 1065-1135 (70 pages)

Subjects: **History and Philosophy of Physics** ([physics.hist-ph](#)); Statistical Mechanics ([cond-mat.stat-mech](#)); Quantum Physics ([quant-ph](#))

[55] [arXiv:1106.0704](#) [[pdf](#), [ps](#), [other](#)]

# Emergence, Reduction and Supervenience: a Varied Landscape

Jeremy Butterfield

Comments: 43 pp

Journal-ref: Foundations of Physics: Volume 41, Issue 6 (2011), Page 920-960 (40 pages)

Subjects: **History and Philosophy of Physics (physics.hist-ph)**; Statistical Mechanics (cond-mat.stat-mech); Quantum Physics (quant-ph)

[56] [arXiv:1106.0705](#) [[pdf](#), [other](#)]

## Selective tuning of high-Q silicon photonic crystal nanocavities via laser-assisted local oxidation

Charlton J. Chen, Jiangjun Zheng, Tingyi Gu, James F. McMillan, Mingbin Yu, Guo-Qiang Lo, Dim-Lee Kwong, Chee Wei Wong

Comments: 12 pages, 7 figures

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

[57] [arXiv:1106.0734](#) [[pdf](#), [ps](#), [other](#)]

## Generating functions for canonical systems of fermions

Jean-Christophe Pain, Franck Gilleron, Quentin Porcherot

Comments: submitted to Physical Review E

Subjects: **Atomic Physics (physics.atom-ph)**; Statistical Mechanics (cond-mat.stat-mech); Quantum Physics (quant-ph)

[58] [arXiv:1106.0738](#) [[pdf](#), [other](#)]

## A new test of local Lorentz invariance using $^{21}\text{Ne}$ -Rb-K comagnetometer

M. Smiciklas, J. M. Brown, L.W. Cheuk, M. V. Romalis

Comments: 5 pages

Subjects: **Atomic Physics (physics.atom-ph)**; High Energy Physics - Phenomenology (hep-ph)

[59] [arXiv:1106.0798](#) [[pdf](#), [ps](#), [other](#)]

## Magnetoelastic nonlinear metamaterials

Mikhail Lapine, Ilya V. Shadrivov, David A. Powell, Yuri S. Kivshar

Comments: 4 pages, 5 figures

Journal-ref: Nature Materials 11, 30-33 (2012)

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

[60] [arXiv:1106.0803](#) [[src](#)]

## Deregulating 'the rural'; threatening land management regime. Experiences of space in the Tuscan countryside

Stefano Orsini

Comments: Further results will be published

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

[61] [arXiv:1106.0818](#) [[pdf](#)]

## The cradle of pyramids in satellite images

Amelia Carolina Sparavigna

Comments: Satellite imagery, image processing, Google Maps, archaeology

Subjects: **Geophysics (physics.geo-ph)**

[62] [arXiv:1106.0819](#) [[pdf](#), [other](#)]

## Snell's law for particles moving on piecewise homogeneous two

# dimensional surface with linear boundaries

[Pratik Mandrekar](#), [Toby Joseph](#)

Comments: 5 pages, 4 figures

Subjects: **Classical Physics (physics.class-ph)**; Biological Physics (physics.bio-ph)

[63] [arXiv:1106.0824](#) [pdf]

## On the Four Types of Weight Functions for Spatial Contiguity Matrix

[Yanguang Chen](#)

Comments: 8 pages, 5 figures, 2 tables

Subjects: **Data Analysis, Statistics and Probability (physics.data-an)**

[64] [arXiv:1106.0827](#) [pdf, ps, other]

## Enhanced rise of rogue waves in slant wave groups

[V. P. Ruban](#)

Comments: revtex4, 4 pages, 8 figures, minor corrections, additional numerical results included

Journal-ref: JETP Letters 94(3), 177-181 (2011)

Subjects: **Fluid Dynamics (physics.flu-dyn)**; Atmospheric and Oceanic Physics (physics.ao-ph)

[65] [arXiv:1106.0842](#) [pdf, other]

## Three-Axis Measurement and Cancellation of Background Magnetic Fields to less than 50 uG in a Cold Atom Experiment

[Aaron Smith](#), [Brian E. Anderson](#), [Souma Chaudhury](#), [Poul S. Jessen](#)

Comments: 7 pages, 8 Figures

Journal-ref: J. Phys. B: At. Mol. Opt. Phys. 44 (2011) 205002

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

[66] [arXiv:1106.0847](#) [pdf]

## Is dark matter an illusion created by the gravitational polarization of the quantum vacuum?

[Dragan Slavkov Hajdukovic](#)

Comments: We have added an Appendix in order to show that the gravitational polarization of the quantum vacuum allows the understanding of the universality of the central surface density of galaxy dark matter haloes, the cored dark matter haloes in dwarf spheroidal galaxies, the non-existence of dark disks in spiral galaxies and distribution of dark matter after collision of clusters of galaxies

Journal-ref: Astrophys.Space Sci.334:215-218,2011

Subjects: **General Physics (physics.gen-ph)**; Cosmology and Extragalactic Astrophysics (astro-ph.CO)

[67] [arXiv:1106.0860](#) [pdf, ps, other]

## The Spread of Viruses and Bugs in Self Organizing Networks

[Swarbhanu Chatterjee](#)

Comments: 6 pages

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

[68] [arXiv:1106.0872](#) [pdf]

## Model of Opinion Spreading in Social Networks

[Igor Kanovsky](#), [Omer Yaary](#)

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

[69] [arXiv:1106.0876](#) [pdf]

# An ordinary differential equation for velocity distribution and dip-phenomenon in open channel flows

[Rafik Absi](#) (EBI)

Journal-ref: Journal of Hydraulic Research, IAHR, Taylor and Francis 49, 1 (2011) 82-89

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

[70] [arXiv:1106.0886](#) [[pdf](#), [ps](#), [other](#)]

## Exploring Interatomic Coulombic Decay by Free Electron Lasers

[Philipp V. Demekhin](#), [Spas D. Stoychev](#), [Alexander I. Kuleff](#), [Lorenz S. Cederbaum](#)

Comments: 5 figures, Supplemental material file

Journal-ref: Physical Review Letters 107, 273002 (2011)

Subjects: **Atomic and Molecular Clusters (physics.atm-clus)**

[71] [arXiv:1106.0887](#) [[pdf](#)]

## Urban chaos and replacement dynamics in nature and society

[Yanguang Chen](#)

Comments: 17 pages, 5 figures, 3 tables

Subjects: **Physics and Society (physics.soc-ph)**; Adaptation and Self-Organizing Systems (nlin.AO); Populations and Evolution (q-bio.PE)

[72] [arXiv:1106.0900](#) [[pdf](#), [ps](#), [other](#)]

## Einstein's 'Zürich Notebook' and his Journey to General Relativity

[Norbert Straumann](#)

Comments: 19 pages, invited talk at the conference "Cosmology since Einstein", Hong Kong, 30 May -- 1 June, 2011

Journal-ref: Annalen Phys.523:488-500,2011

Subjects: **History and Philosophy of Physics (physics.hist-ph)**; General Relativity and Quantum Cosmology (gr-qc)

[73] [arXiv:1106.0903](#) [[pdf](#), [ps](#), [other](#)]

## Response: Comment on "Energy Transfer and Dual Cascade in Kinetic Magnetized Plasma Turbulence"

[G. G. Plunk](#), [T. Tatsuno](#)

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

[74] [arXiv:1106.0909](#) [[pdf](#)]

## Overview of the Tevatron Collider Complex: Goals, Operations and Performance

[Stephen Holmes](#), [Ronald S. Moore](#), [Vladimir Shiltsev](#)

Comments: Includes modifications suggested by reviewers

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

[75] [arXiv:1106.0910](#) [[pdf](#)]

## On the space and time evolution of regular or irregular human heart or brain signals

[Caglar Tuncay](#)

Comments: 6 pages, 3 figures

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

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