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2018–	Editor	New Journal of Physics (NJP)

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2002–	European Physics Journal B (EPJB)
2003–	Journal of Mathematical Biology
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2004–	Journal of Geophysical Research: Atmospheres
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2005–	Proceedings of the National Academy of Sciences of USA (PNAS)
2006–	Journal of Applied Physiology
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2012– Theoretical Biology and Medical Modeling
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2013– Computational and Mathematical Methods in Medicine
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2016– Medical Engineering & Physics
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2011, Volume 37 (4 issues) ISSN 0092-0606

Periodicals postage paid at Rahway, N.J. USPS No. 017-315. U.S. Mailing Agents: Mercury Airfreight International Ltd., 365 Blair Road, Avenel, NJ 07001.
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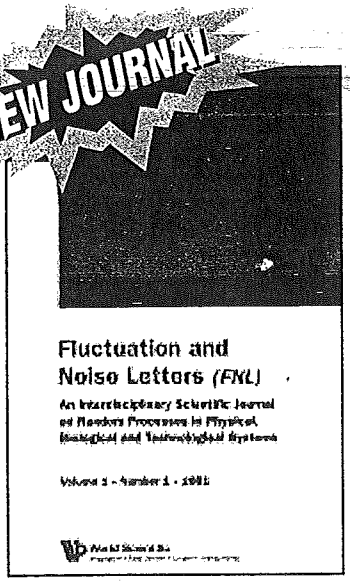

FLUCTUATION AND NOISE LETTERS (FNL)

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The journal will be available online as well as in print format.

- Online version: Papers will be web-published three weeks after acceptance.
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Volume 1 • Number 3 • September 2001

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Fluctuation and Noise Letters (ISSN 0219-4775) is published quarterly by World Scientific Publishing Co. Pte. Ltd., Farrer Road, P.O. Box 128, Singapore 912805. Annual subscription rates are available upon request. Periodicals postage paid at Jamaica, N.Y. 11431.

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AM: EXPERIMENT: Atomic and molecular physics, physical chemistry and chemical physics

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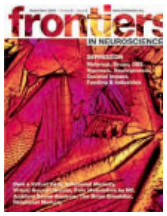

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Focus on Network Physiology and Network Medicine

Plamen Ch Ivanov, *Boston University and Harvard Medical School, USA*

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Plamen Ch Ivanov *et al* 2016 *New J. Phys.* **18** 100201

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- Studies on structural and dynamical aspects of physiological systems that transcend time and space scales.
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- The role of time-dependent network interactions for emergent transitions in network topology and function.
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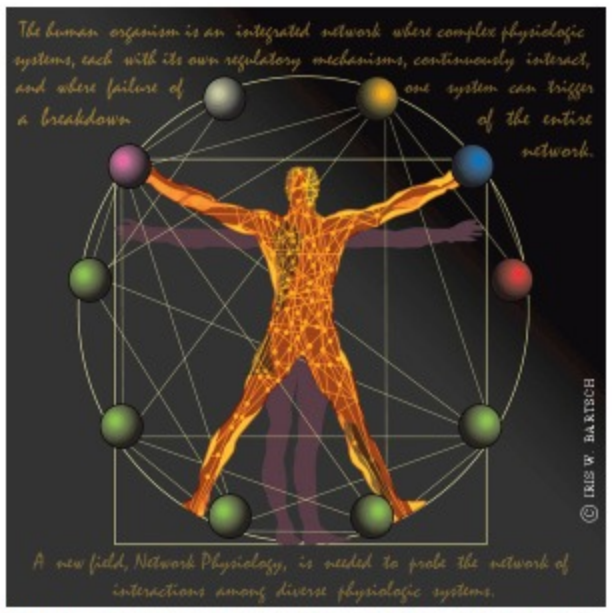

Figure. The human organism is an integrated network where complex physiologic systems, each with their own regulatory mechanisms, continuously interact, and where the failure of one system can trigger a breakdown of the entire network. A new field, network physiology, is needed to probe the network of interactions among diverse physiological systems. (Image copyright: Iris W Bartisch.)

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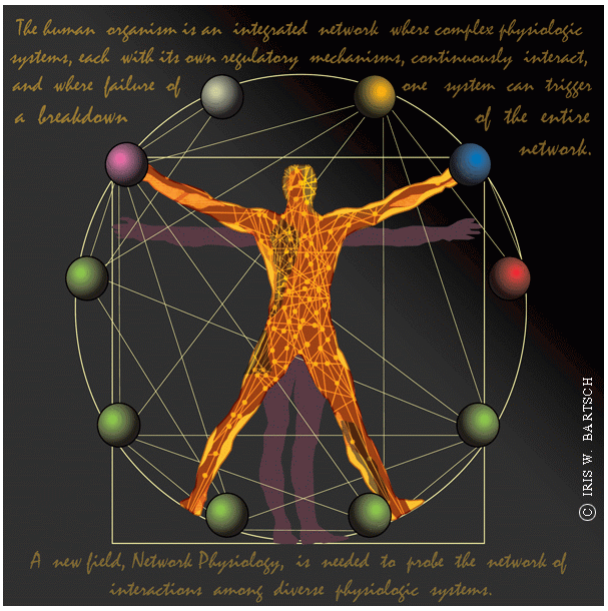

Figure. The human organism is an integrated network where complex physiologic systems, each with their own regulatory mechanisms, continuously interact, and where the failure of one system can trigger a breakdown of the entire network. A new field, network physiology, is needed to probe the network of interactions among diverse physiological systems. (Image copyright: Iris W Bartisch.)

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The new field of Network Physiology: redefining health and disease through networks of physiological interactions

Plamen Ch. Ivanov *Boston University and Harvard Medical School, USA*

Scope

The human organism is an integrated network, where physiological systems and organs, each with its own regulatory mechanism, continuously interact to coordinate their functions. Physiological interactions are essential to produce distinct physiologic states, e.g. wake and sleep, consciousness and unconsciousness. Disrupting organ communications can lead to dysfunction of individual systems or to collapse of the entire organism, as observed under clinical conditions such as sepsis, coma and multiple organ failure. Yet, despite the importance to basic physiology and clinical practice we do not know the principles and mechanisms through which diverse physiological systems and organs dynamically interact over a range of space and time scales and integrate to generate a variety of behaviors and distinct physiologic states at the organism level.

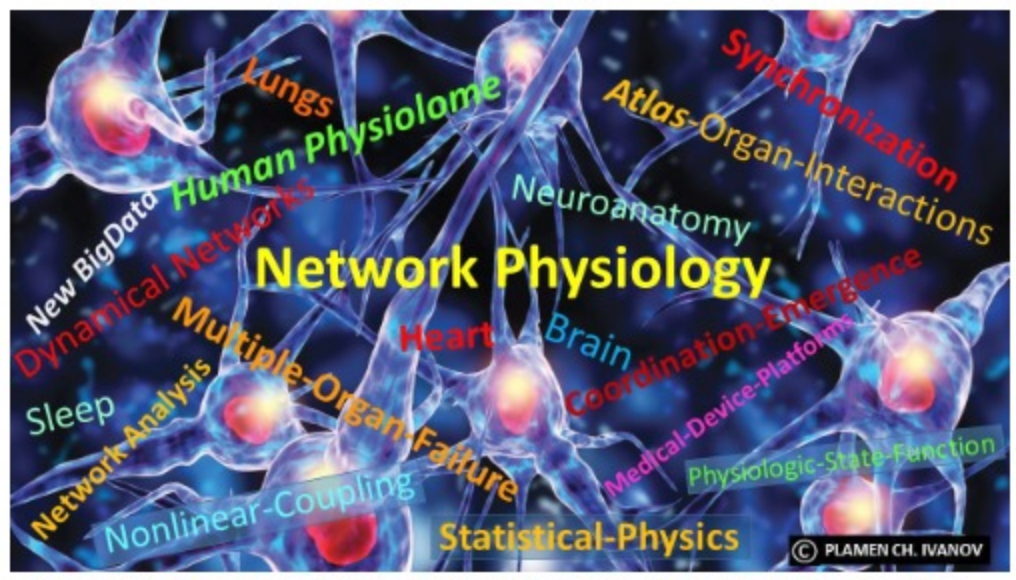

Figure. Network Physiology: the new frontier in physiology and complexity science. **Image credit:** Plamen Ch. Ivanov

The emerging new interdisciplinary field of Network Physiology aims to address this fundamental question. In addition to defining health and disease through structural, dynamical and regulatory changes in individual physiological systems, the new conceptual framework of Network Physiology focuses on the coordination and network interactions among diverse organ systems and sub-systems as a hallmark of physiologic state and function.

A fundamental problem encountered in physical, biological and physiological systems is to quantify and understand phenomena where global behavior across systems emerges out of networked interactions among dynamically-changing entities with coupling forms that are function of time. Currently, there are no adequate analytic tools and theoretical framework to probe physiologic interactions among diverse systems.

The objective of this focus collection is to (i) provide a forum for developing new methodologies and theoretical framework to address problems and challenges in Network Physiology; (ii) to initiate the development of new databases of continuous and synchronous recordings of multiple physiological parameters; and (iii) to promote data-driven discoveries of the basic physiologic laws and control mechanisms that underlay physiologic interactions during various physiological states and under pathological conditions.

We aim to bring together basic physiologists, medical specialists and clinical practitioners with researchers from the fields of biomedical engineering, signal processing, nonlinear dynamics and statistical physics.

Of particular interest will be new approaches to identify and quantify forms of physiologic coupling as well as developing new and little-explored areas of network science of relevance to integrated physiological systems, including the following:

- Studies on structural and dynamical aspects of physiological systems that transcend space and time scales.
- Functional forms of physiologic coupling, time variation and effects of pair-wise interactions on the dynamics and control of individual systems.
- Networks comprised of diverse physiological systems and associations between physiologic network structure and physiologic function.
- Evolution of pair-wise coupling and network topology with transitions across physiologic states; basic principles of hierarchical network reorganization.
- The role of time-dependent network interactions for emergent transitions in network topology and function.
- Manipulation, control and global dynamics of networks in response to clinical treatment.
- Information flow on network topology in relation to cellular and neuronal assemblies and autonomic control of organ systems.
- Networks of physiological networks transcending interactions of sub-systems to interactions among organs.
- Cascades of failure across systems as encountered in ICU critical care.

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Manuscript Referral

Manuscript Number:
LC6421 7 April 1997

Author: J. Arrault, A. Arneodo, A. Davis, and A. Marshak

Title: Wavelet based multifractal analysis of rough surfaces: Application to cloud models and satellite data

Referred to:

Dr. Plamen Ivanov
Center for Polymer Studies
Boston University
Boston, MA 02215

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Manuscript Referral

Manuscript Number:
LT7653

1 August 2000

Author: Michael A. Zaks

Title: Multifractal Fourier spectra and power-law decay of correlations in random ...

Referred to:

Dr. Plamen Ivanov
Ctr. for Polymer Studies
Department of Physics
590 Commonwealth Ave.
Boston University
Boston, MA 02215

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356151/108

Manuscript Number:
LT7653

1 August 2000

Author: Michael A. Zaks

Title: Multifractal Fourier spectra and power-law decay of correlations in random ...

Referred to:

Dr. Plamen Ivanov
Ctr. for Polymer Studies
Department of Physics
590 Commonwealth Ave.
Boston University
Boston, MA 02215

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Manuscript Referral

Manuscript Number:

LN7432

15 February 2000

Author: Bonanno, Vandewalle, and Mantegna

Title: Taxonomy of stock market indices

Referred to:

Dr. Plamen Ivanov
Ctr. for Polymer Studies
Department of Physics
590 Commonwealth Ave.
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Manuscript Number:

LN7432

15 February 2000

Author: Bonanno, Vandewalle, and Mantegna

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26 June 1997

Re: Wavelet based multifractal analysis of rough surfaces: Application to cloud models and ...

By: Arrault, Arnéodo, Davis, and Marshak LC6421

Dear Dr. Ivanov:

Thank you very much for reviewing the above paper. It was resubmitted and has been accepted for publication in a forthcoming issue of Physical Review Letters.

We enclose the response from the author(s) for your information.

Yours sincerely,

Robert Garisto
Senior Assistant to the Editors
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enc.

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Department of Physics
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