New Topics each 6 years?

remarks to Biro70 2026

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[2]Compelxity Science Hub, Vienna, Austria

JUNE 9, 2026

Biro 70 at Wigner RCP 2026.

My main research topics

1978 - 2026, a time ordered selection

- Optical illusions in a neural network model (PV, JZ)
- Phase transition in molecular bilayer lipid membranes (diploma)
- Quarkochemistry and hadrochemistry, transchemistry, ALCOR (JZ, PL, TCs)
- Color Rope Model (SU3 random walk + Schwinger mechanism, HBN, JK)
- Percolation model for nuclear fragmentation (JR, JK)
- Variational QCD and QGP, massive gluons (LP, BM)
- Chaos in Gauge Field Theory (classical YM Hamiltonian on lattice) (BM)
- Non-extensive statistics, entropy formula generalization (PV, GGB, ÜK, GP, GB)
- LGGR: Local Growth Global Reset model (ZN, AJ)
- Gintropy: density of Gini index on the Lorenz map (AJ, AT)
- NAPLIFE: seeking plasmonic help for fusion ignition (NK, LPCs, ++ ...)
- Civilization dynamics

Google Scholar Data

my top ten papers by citation number (Jan 2023)

1. Colour Rope 396 (NPB 245 1984)
2. Parton equilibration 385 (PRC 48 1993)
3. ALCOR 207 (PLB 347 1995)
4. Non-extensive 207 (EPJ A 40 2009)
5. Chaos book 189 (World Sci 1994)
6. Hadrochemistry 179 (NPA 395 1983)
7. Power law tails 177 (PRL 94 2005)
8. Eta production in pn 149 (PLB 263 1991)
9. Quarkochemistry 125 (PLB 113 1982)
10. Hamiltonian Yang-Mills 111 (arxiv nucl-th/9306002 1993)

Google Scholar Data

my top ten papers by cits per year (jan 2023)

1. Non-extensive 14,6 (EPJ A 40 2009)
2. Parton equilibration 12,8 (PRC 48 1993)
3. Colour Rope 10,1 (NPB 245 1984)
4. Power law tails 9,8 (PRL 94 2005)
5. q-Renyi BH 9,6 (PLB 726 2013)
6. Zeroth law in non-extensive 8,6 (PRE 83 2011)
7. ALCOR 7,4 (PLB 347 1995)
8. First order and stable diss. hydro. 7,4 (PLB 709 2012)
9. QGP connected to Finite Heat Bath 7,0 (EPJ A 49 2013)
10. Generalised Tsallis 7,0 (PLB 701 2011)

Echo

Biró-Néda modell

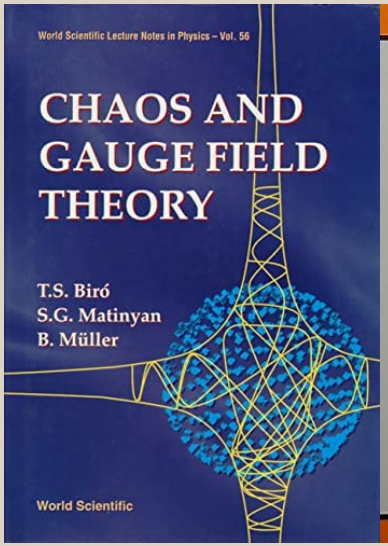
Comments on Mathematical Aspects of the Biró-Néda Model,

Ilda Ináció, José Velhinho

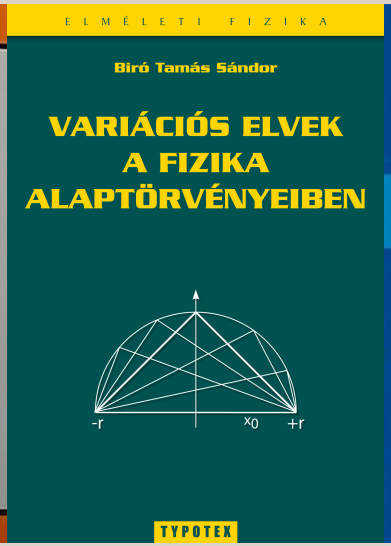
Mathematics (mdpi) **10**, 2022, 644

www.youtube.com/watch?v=GQ1iiwDWMqY

My books


World Scientific Lecture Notes in Physics – Vol. 56
CHAOS AND GAUGE FIELD THEORY
T.S. Biró
S.G. Matinyan
B. Müller
World Scientific


BUDAPESTI MŰSZAKI ÉS GAZDASÁGTUDOMÁNYI EGYETEM
TERMÉSZETTUDOMÁNYI KAR
Biró Tamás Sándor
BEVEZETÉS A TÉRELMÉLETBE
Műegyetemi Kiadó


ELMÉLETI FIZIKA
Biró Tamás Sándor
VARIÁCIÓS ELVEK A FIZIKA ALAPTÖRVÉNYEIBEN
-r
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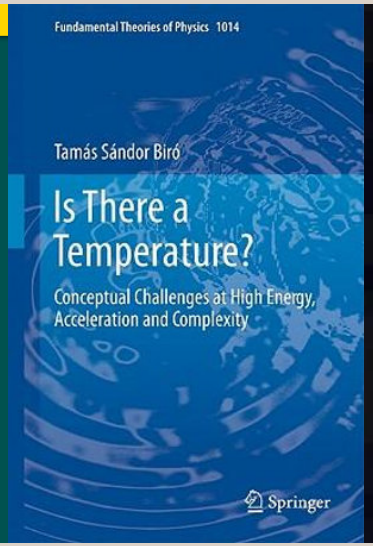
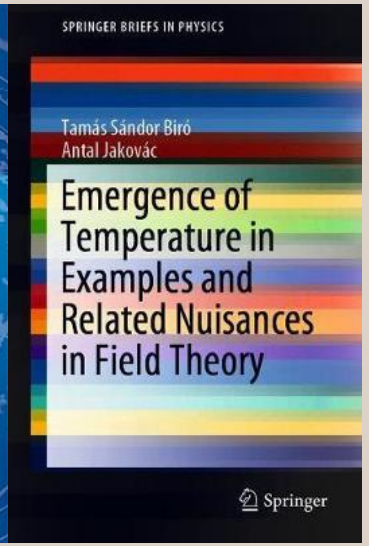
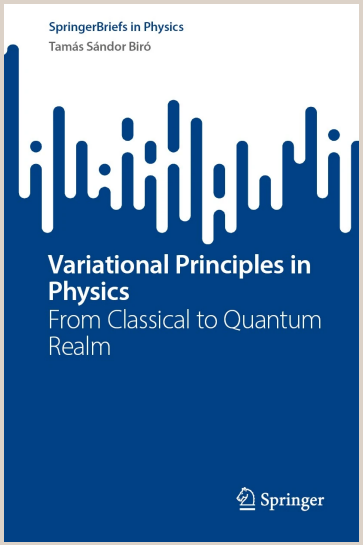
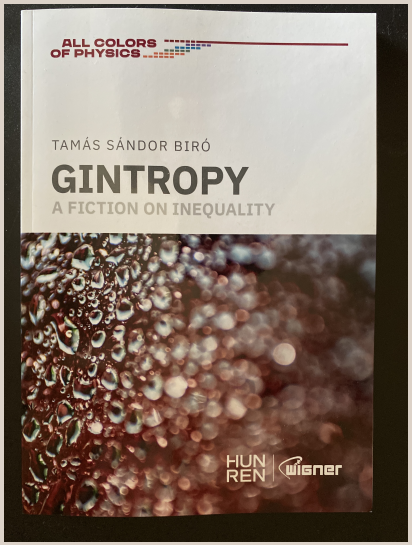
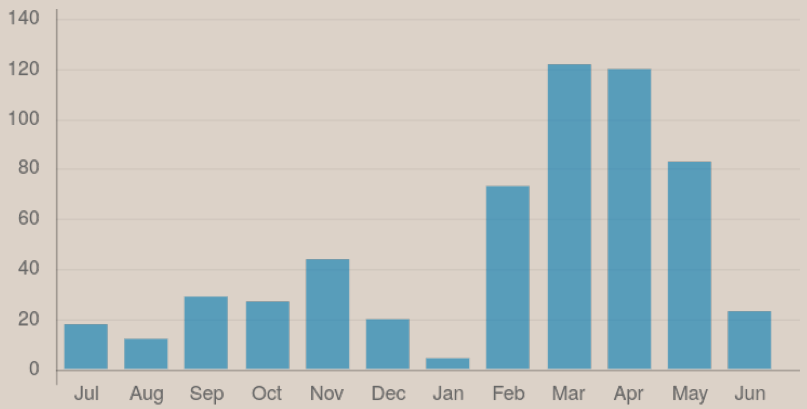
TYPOTEX


Fundamental Theories of Physics 1014
Tamás Sándor Biró
Is There a Temperature?
Conceptual Challenges at High Energy, Acceleration and Complexity
Springer


SPRINGER BRIEFS IN PHYSICS
Tamás Sándor Biró
Antal Jakovác
Emergence of Temperature in Examples and Related Nuisances in Field Theory
Springer


SpringerBriefs in Physics
Tamás Sándor Biró
Variational Principles in Physics
From Classical to Quantum Realm
Springer


ALL COLORS OF PHYSICS
TAMÁS SÁNDOR BIRÓ
GINTROPY
A FICTION ON INEQUALITY
HUN REN
wigner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Tamas Sandor Biro

over some years

1985

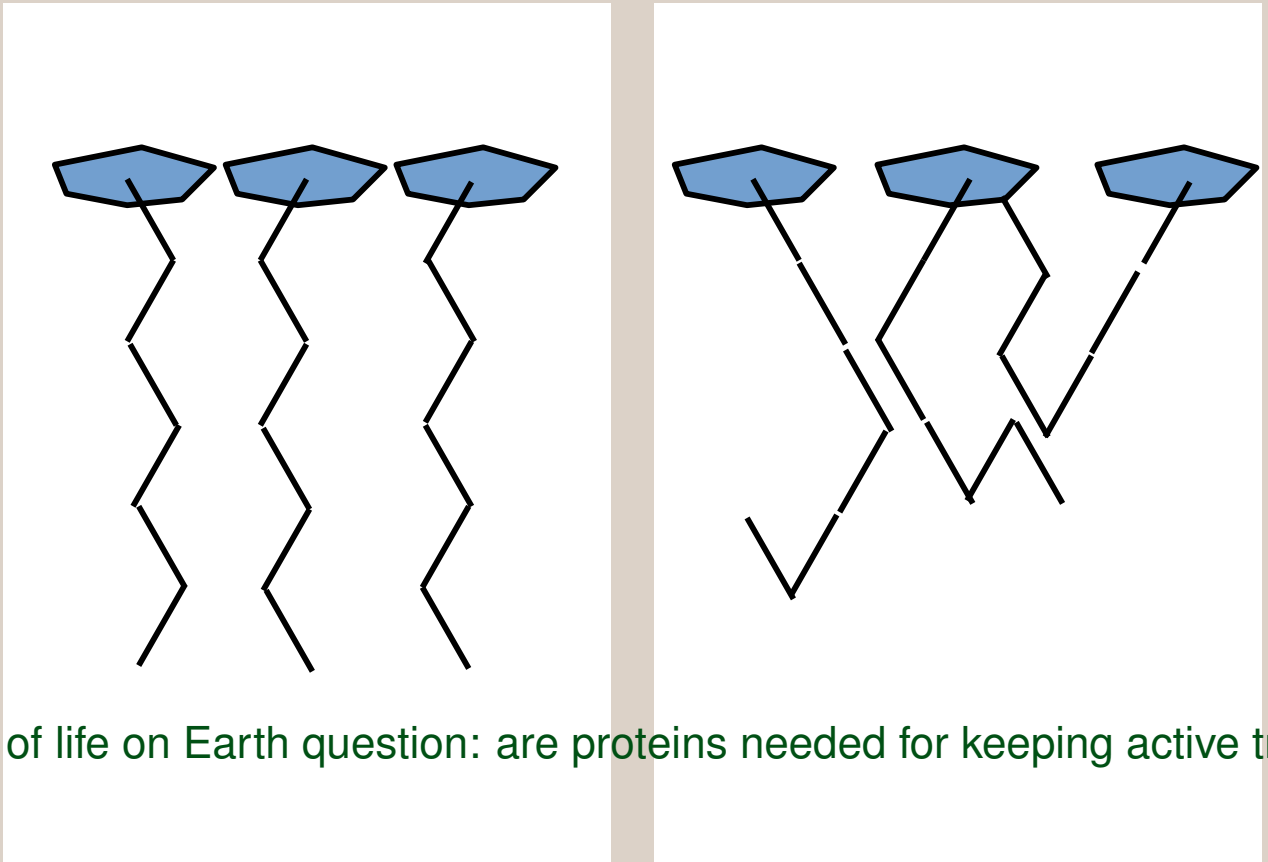
2004

2023

Appendix: MSc thesis work

Molecular bilayer lipid membranes

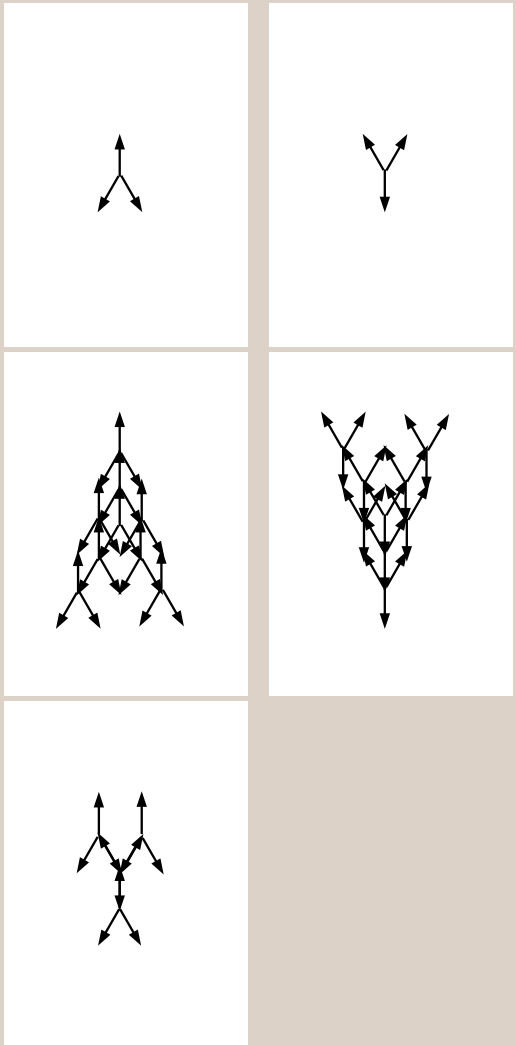
High-spin Ising-like phase transition between tight and loose structures at $T = 36 \ldots 42^o C$.



Beginning of life on Earth question: are proteins needed for keeping active transport?

Appendix: 1985 postdoc work

Random walk among SU(3) color multiplets



Random walk starts at singlet: $(0,0)$. Recursive steps:

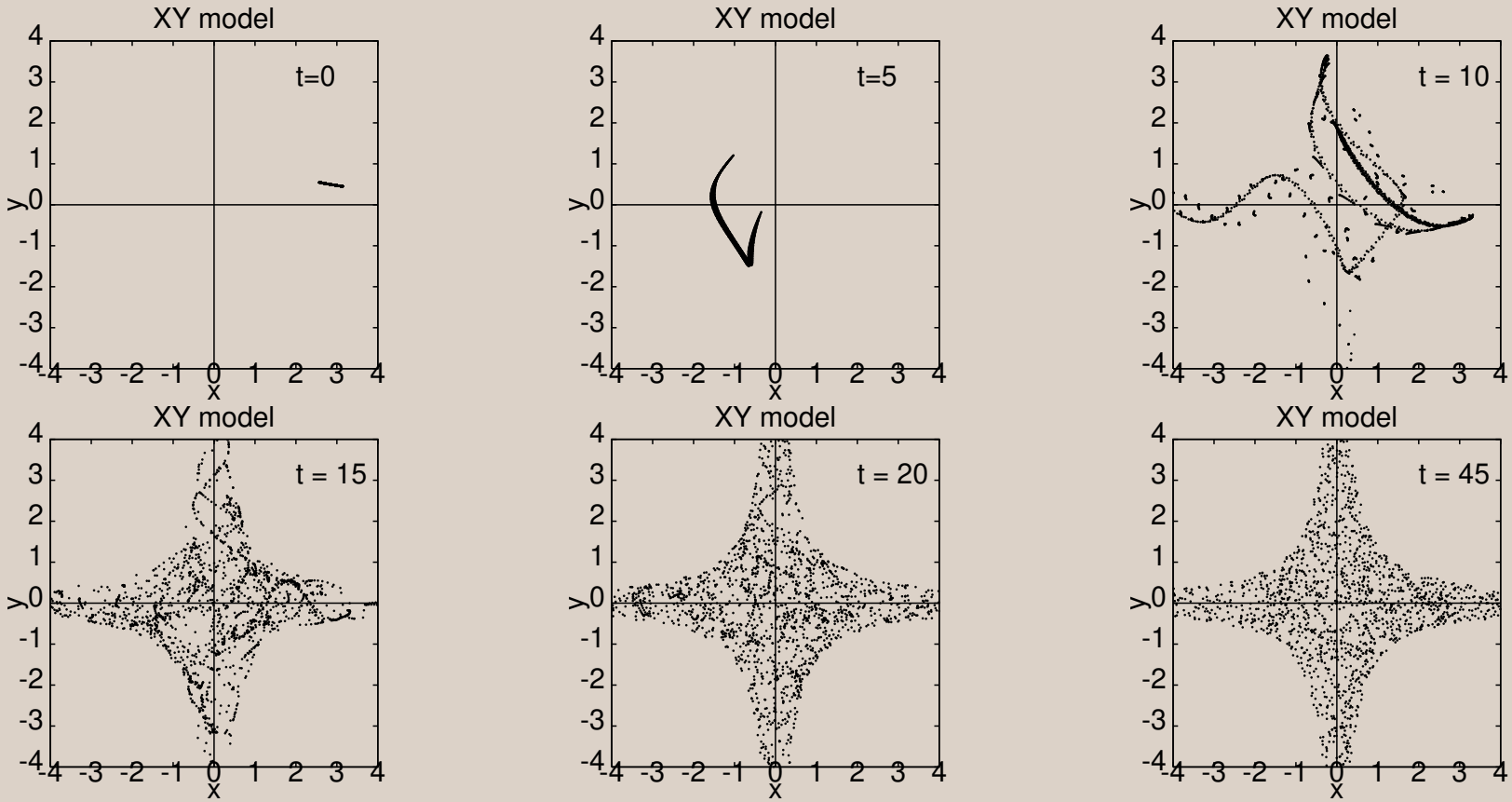
$$(p,q)\otimes(1,0) = (p+1,q)\oplus(p-1,q+1)\oplus(p,q-1)$$

$$(p,q)\otimes(0,1) = (p,q+1)\oplus(p+1,q-1)\oplus(p-1,q)$$

$$I_3 = \tfrac{p+q}{2},\ Y = \tfrac{p-q}{3},$$
$$\deg = (p+1)(q+1)\left(\tfrac{p+q}{2}+1\right)$$
$$\text{and } C_2 = \tfrac{1}{3}\left(p+q+\tfrac{p^2+pq+q^2}{3}\right).$$

Appendix: Chaotic Yang Mills

YM mechanics $H = \dot{x}^2 + \dot{y}^2 + x^2 y^2 = 1$



Appendix: Chaotic quantization

4-dim quantum MC vs 5-dim Hamiltonian orbits