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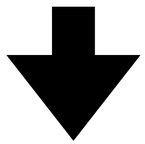


1. arXiv:2510.01814 [pdf, ps, other] q-fin.TR cond-mat.stat-mech q-fin.CP q-fin.GN q-fin.MF

   Mean-field theory of the Santa Fe model revisited: a systematic derivation from an exact BBGKY hierarchy for the zero-intelligence limit-order book model

   Authors: Taiki Wakatsuki, Kiyoshi Kanazawa

   Abstract: The Santa Fe model is an established **econophysics** model for describing stochastic dynamics of the limit order book from the viewpoint of the zero-intelligence approach. While its foundation was studied by combining a dimensional analysis and a mean-field theory by E. Smith et al. in Quantitative Finance 2003, their arguments are rather heuristic and lack sol... ▽ More

   Submitted 2 October, 2025; **originally announced** October 2025.

   Comments: 40 pages, 10 figures

2. arXiv:2507.08394 [pdf, ps, other] q-fin.ST

   Temperature Measurement in Agent Systems

   Authors: Christoph J. Börner, Ingo Hoffmann

   Abstract: Models for spin systems, known from statistical physics, are applied analogously in econometrics in the form of agent-based models. The models discussed in the **econophysics** literature all use the state variable T, which, in physics, represents the temperature of a system. However, there is little evidence on how temperature can be measured in... ▽ More

   Submitted 11 July, 2025; **originally announced** July 2025.

   Comments: 1 figure

3. arXiv:2504.12340 [pdf] econ.GN quant-ph

   Particle-Hole Creation in Condensed Matter: A Conceptual Framework for Modeling Money-Debt Dynamics in Economics

   Authors: Bumned Soodchomshom

   Abstract: ...approach provides physicists with a rigorous and intuitive toolset to analyze economic behavior using many-body theory, laying the groundwork for a new class of models in **econophysics** and interdisciplinary field analysis. ▽ More

   Submitted 18 April, 2025; **v1** submitted 15 April, 2025; **originally announced** April 2025.

   Comments: 12 pages,1 figure, 2 table, section 4.5 added

4. arXiv:2411.13965 [pdf, other] q-fin.TR cond-mat.stat-mech econ.GN q-fin.PM q-fin.RM

   Does the square-root price impact law belong to the strict universal scalings?: quantitative support by a complete survey of the Tokyo stock exchange market

   Authors: Yuki Sato, Kiyoshi Kanazawa

   Abstract: Universal power laws have been scrutinised in physics and beyond, and a long-standing debate exists in **econophysics** regarding the strict universality of the nonlinear price impact, commonly referred to as the square-root law (SRL). The SRL posits that the average price impact I follows a power law with respect to transaction volume Q, such that... ▽ More

   Submitted 21 November, 2024; **originally announced** November 2024.

   Comments: 28 pages, 16 figures

5. arXiv:2411.05696 [pdf, ps, other] math.AP cond-mat.stat-mech

   A gradient flow perspective on McKean-Vlasov equations in econophysics

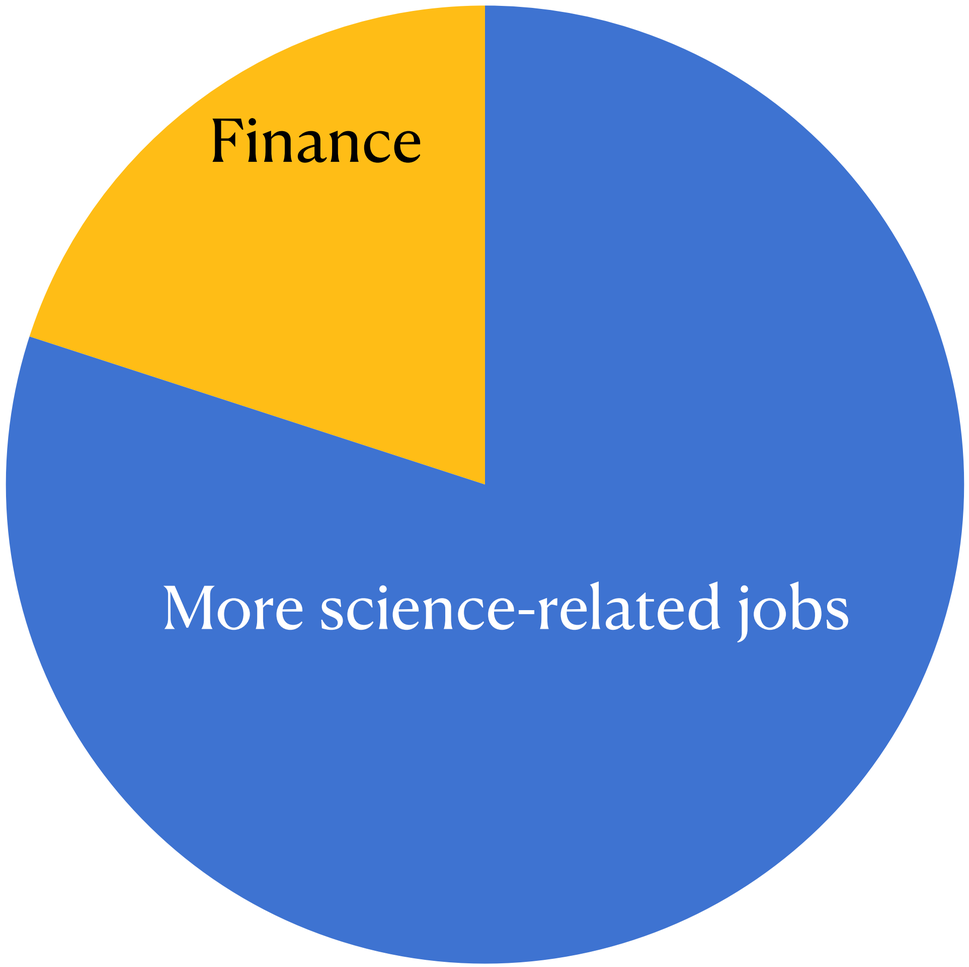
   Authors: David W. Cohen

   Abstract: ...same way that classical 2-Wasserstein theory connects heat flow and the Second Law of Thermodynamics by way of Boltzmann entropy, the work here gives rise to a principle of **econophysics** that is much of the same flavor but for the Gini coefficient. The noncanonical Onsager operators associated to the metric tensors are derived and some transport inequalitie... ▽ More

   Submitted 28 May, 2025; **v1** submitted 8 November, 2024; **originally announced** November 2024.

   MSC Class: 58E30; 91B80; 82C22; 82C31; 35A15

6. arXiv:2410.17587 [pdf, other] cs.CE cs.LG econ.GN physics.soc-ph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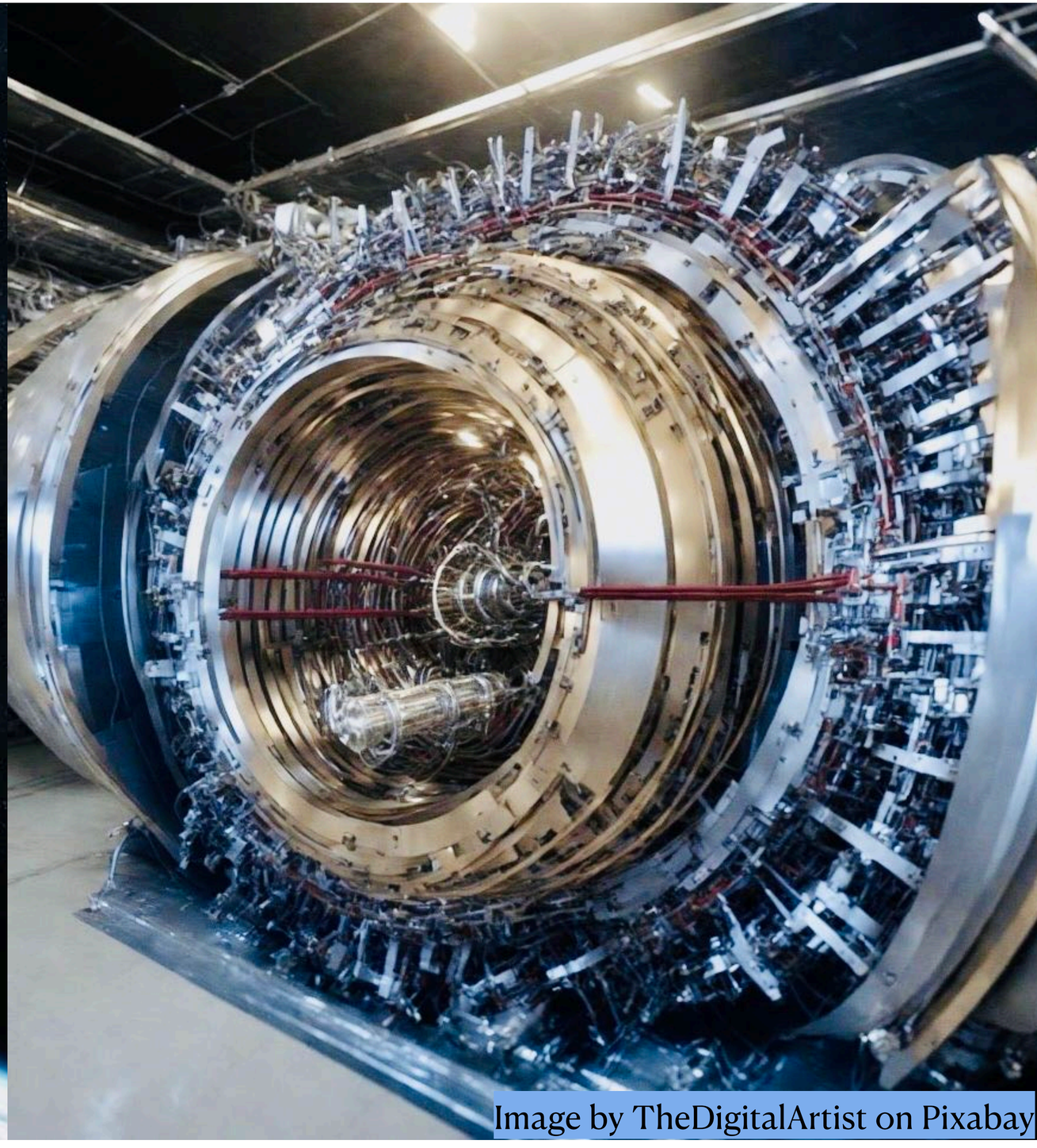

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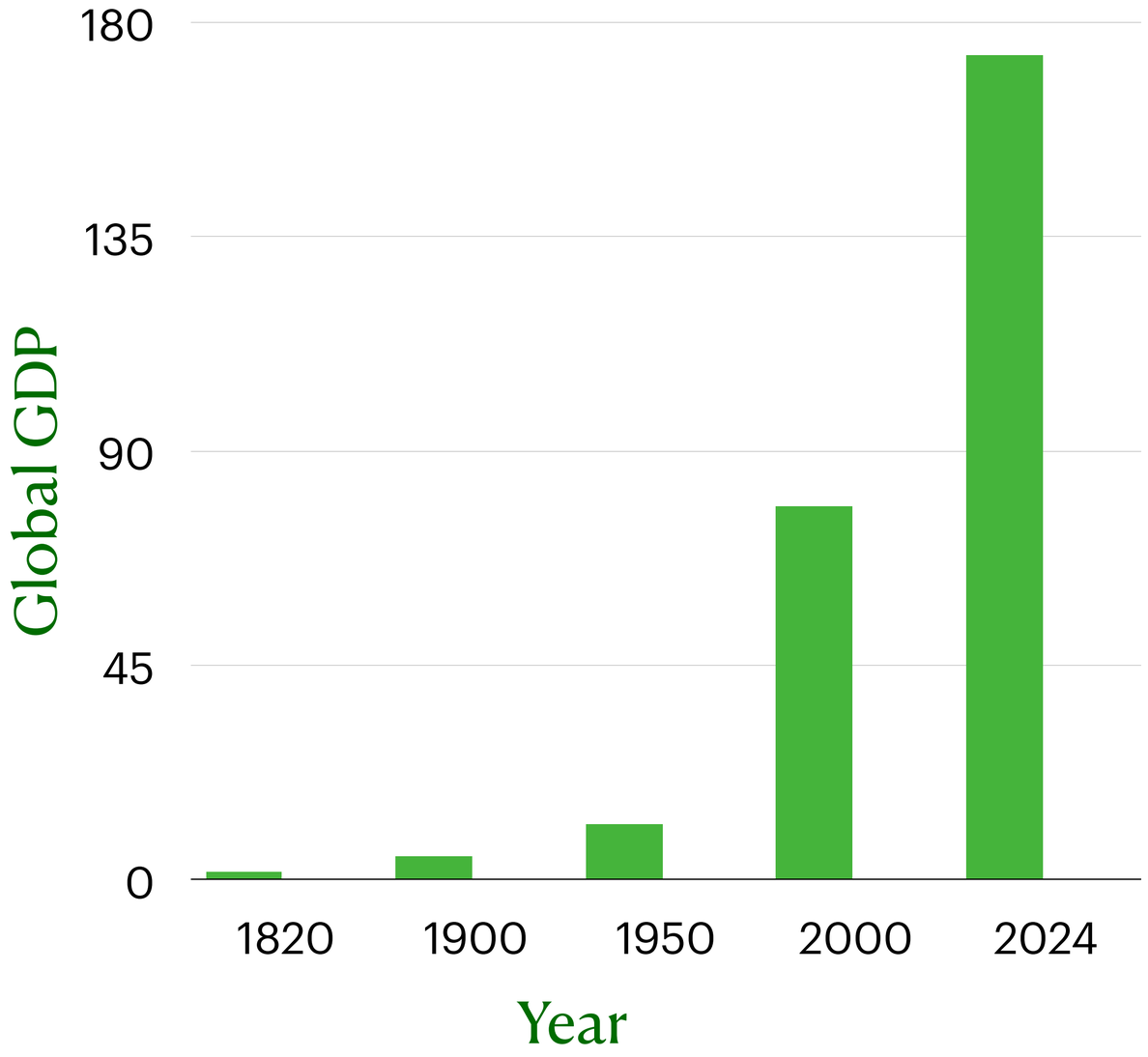

Data from https://ourworldindata.org/grapher/global-gdp-over-the-long-run