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Editorial

Editorial for Special Issue Feature Papers 2020

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This issue of featured papers from 2020 is related to the study of symmetry phenomena in various different fields, but mainly in theoretical physics. It is well known that symmetry plays a fundamental role in physics and mathematics. Despite the years of development and the study of different aspects of symmetry, many questions remain unsolved.

Reference [1] is devoted to the study of the concept of an out-of-time-ordered correlation function as strong theoretical probe of quantum randomness. Using this concept, one can study chaotic or non-chaotic behavior and symmetries in quantum statistical mechanics.

Reference [2] by Yurova et al. studies of the Cauchy problem for the Novikov–Veselov equation. The Moutard symmetry technique is used for this study.

In Reference [3] by Prof. Buchbinder et al., an investigation of on-shell, massless, higher -spin supermultiplets in four-dimensional anti-de Sitter space is carried out. The corresponding construction of the component Lagrangian is based on the use of symmetries in the main part.

Reference [4] is devoted to the construction of the slow-roll inflationary universe in modified F(R) gravity in frames of a Palatini non-metric formulation. For a general review of modified-gravity cosmology, the review [5] maybe consulted.

Reference [6] provides some work on mathematical physics. It proposes non-commutative integration of the Dirac equation in homogeneous spaces.

A very detailed review of anisymmetric fields in modified gravity is given by Dr. Paul in Reference [7].

Reference [8] is devoted to the construction of specific Shapovalov wave-like spaces. This is extremely important for the development of theoretic techniques related to the study of gravitational waves.

In Reference [9], Prof. Obukhov studies symmetries of charged test particles via the Hamilton–Jacobi equation for specific Stackel space.

Reference [10] is devoted to the construction of a unified scenario for the evolution of the universe in exponential and R^2 gravities. This continues the corresponding proposal by S. Nojiri and co-authors with the aim of finding a consistent description of the history of the universe.

Finally, Reference [11] is devoted to hierarchical structural formations in molecular biology.

All papers are written by well-known experts in the corresponding fields. They should definitely attract the attention of specialists working in related areas.

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References

1. Bhagat, K.Y.; Bose, B.; Choudhury, S.; Chowdhury, S.; Das, R.N.; Dastider, S.G.; Gupta, N.; Maji, A.; Pasquino, G.D.; Paul, S. The Generalized OTOC from Supersymmetric Quantum Mechanics—Study of Random Fluctuations from Eigenstate Representation of Correlation Functions. *Symmetry* **2020**, *13*, 44. [CrossRef]
2. Yurova, A.A.; Yurov, A.V.; Yurov, V.A. The Cauchy Problem for the Generalized Hyperbolic Novikov–Veselov Equation via the Moutard Symmetries. *Symmetry* **2020**, *12*, 2113. [CrossRef]
3. Buchbinder, I.L.; Snegirev, T.V. Lagrangian formulation of free arbitrary N-extended massless higher spin supermultiplets in 4D, AdS space. *Symmetry* **2020**, *12*, 2052. [CrossRef]
4. Bekov, S.; Myrzakulov, K.; Myrzakulov, R.; Gómez, D.S.C. General slow-roll inflation in $f(R)$ gravity under the Palatini approach. *Symmetry* **2020**, *12*, 1958. [CrossRef]
5. Nojiri, S.; Odintsov, S.D. Unified cosmic history in modified gravity: From F(R) theory to Lorentz non-invariant models. *Phys. Rept.* **2011**, *505*, 59–144. [CrossRef]
6. Breev, A.I.; Shapovalov, A.V. Noncommutative integration of the Dirac equation in homogeneous spaces. *Symmetry* **2020**, *12*, 1867. [CrossRef]
7. Paul, T. Antisymmetric tensor fields in modified gravity: A summary. *Symmetry* **2020**, *12*, 1573. . [CrossRef]
8. Osetrin, K.; Osetrin, E. Shapovalov wave-like spacetimes. *Symmetry* **2020**, *12*, 1372. [CrossRef]
9. Obukhov, V. Hamilton–Jacobi Equation for a Charged Test Particle in the Stäckel Space of Type (2.0). *Symmetry* **2020**, *12*, 1289. [CrossRef]
10. Granda, L. Unified Inflation and Late-Time Accelerated Expansion with Exponential and R^2 Corrections in Modified Gravity. *Symmetry* **2020**, *12*, 794. [CrossRef]
11. Tverdislov, V.A.; Malyshko, E.V. Chiral Dualism as an Instrument of Hierarchical Structure Formation in Molecular Biology. *Symmetry* **2020**, *12*, 587. [CrossRef]