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Published papers

(by topics, in chronological order for each topic)

Noncommutative Geometry: metric aspect, optimal transport

28. *Matrix geometry emergent from a point*,
with F. D’Andrea and F. Lizzi, Rev. in Math. Phys. **26** 9 (2014) 1450017 (32 pages).
27. *Deformations of the canonical commutation relations and metric structures*,
with F. D’Andrea and F. Lizzi, SIGMA **10** (2014) 062, 14 pages.
26. *Spectral geometry with a cut-off: topological and metric aspects*,
with F. D’Andrea and F. Lizzi, J. Geom. Phys. **82** (2014) 18-45.
25. *Towards a Monge-Kantorovich metric in noncommutative geometry*,
J. of Math. Sciences **196** 2 (2013) 165-174 (initially Zap. Nauch. Semin. POMI. **411** (2013)).
24. *On Pythagoras theorem for the product of spectral triples*,
with F. D’Andrea, Lett. Math. Phys. **103** (2013) 469-492.
23. *Minimal length in quantum space & integrations of the line element in noncommutative geo.*,
with F. Mercati and L. Tomassini, Rev. in Math. Phys. **24** 5 (2012) 36 pages.
22. *Noncommutative geometry of the Moyal plane: translation isometries, Connes distance between coherent states, Pythagoras equality*,
with L. Tomassini, Commun. Math. Phys. **323** (2013) 107-141.
21. *The Spectral distance in the Moyal plane*,
with E. Cagnache, F. D’Andrea, J.C. Wallet, J. Geom. Phys. **61** (2011) 1881-1897.
20. *A view on optimal transport from noncommutative geometry*,
with F. D’Andrea, SIGMA **6** (2010) 057, 24 pages.
19. *Line element in quantum gravity, the example of DSR and Noncommutative geometry*,
Int. J. Mod. Phys. A **24** (2009) 2792-2801.
18. *Spectral distance on the circle*,
J. Func. Anal. **255** (2008) 1575-1612.
17. *Carnot-Carathéodory metric from gauge fluctuation in noncommutative geometry*,
Comm. Math. Phys. **265** (2006) 585-616.
16. *What kind of noncommutative geometry for quantum gravity ?*,
Mod. Phys. Lett. A **20** (2005) 1315-1326.
15. *Discrete Kaluza-Klein from scalar fluctuations in noncommutative geometry*
with R. Wulkenhaar, J. Math. Phys. **43** (2002) 182-204.
14. *Distance in finite spaces from non commutative geometry*
with B. Iochum and T. Krajewski, J. Geom. Phys. **31** (2001) 100-125.

Applications to physics: standard model, gauge theory, Noether theory for quantum groups

13. *On twisting real spectral triples by algebra automorphisms*,
with G. Landi, Lett. Math. Phys. (2016).

12. *Twisted spectral triple for the standard model and dynamical breaking of the grand symmetry*, with A. Devastato, *Mathematical Physics, Analysis and Geometry* (2016).
11. *Grand Symmetry, Spectral Action and the Higgs mass*, with A. Devastato and F. Lizzi, *JHEP* **01** (2014) 42.
10. *Noncommutative gauge theory on \mathbb{R}_θ^2 as matrix models*, with P. Vitale and J.-C. Wallet, *JHEP* **09** (2013) 051.
9. *Twisted Hopf symmetries of canonical noncommutative spacetimes & no-pure-boost principle*, with G. Amelino-Camelia, F. Briscece, G. Gubitosi, A. Marciano, F. Mercati, *Phys. Rev. D* **78** (2008) 025005.
8. *A no-pure-boost uncertainty principle from spacetime noncommutativity*, with G. Amelino-Camelia, G. Gubitosi, A. Marciano, F. Mercati, *Phys. Lett. B* **671** (2008) 298-302.

Modular group and its physical interpretation

7. *Emergence of time in quantum gravity: Is time necessarily flowing ?* *Kronoscope* **13** 1 (2013) 67-84.
6. *Geometric modular action for disjoint intervals and boundary conformal theory*, with K.-H. Rehren and R. Longo, *Rev. in Math. Phys.* **22** 3 (2010) 331-354.
5. *Conformal mapping of Unruh temperature*, *Mod. Phys. Lett. A*, **24** (2009) 1473-1483.
4. *Diamonds's Temperature: Unruh effect for bounded trajectories & the thermal time hypothesis*, with C. Rovelli, *Class. Quant. Grav* **20** (2003) 4919-4932.

Renormalization and Hopf algebra

3. *Wilsonian renormalization, differential equations and Hopf algebras*, with T. Krajewski, *Contemporary Mathematics* **539** (2011), 187-236.
2. *An algebraic Birkhoff decomposition for the continuous renormalization group* with F. Girelli and T. Krajewski, *J. Math. Phys.* **45** (2004) 4679-4697.
1. *Wave-Function renormalization and the Hopf algebra of Connes-Kreimer* with F. Girelli and T. Krajewski, *Mod. Phys. Lett. A* **16** (2001) 299-303.

Proceedings with peer review

11. *From Monge to Higgs: a survey of distance computation in noncommutative geometry*, to appear in *Contemp. Maths.* **676**, arXiv:1604.00499 [math-ph].
10. *Beyond the Standard Model with noncommutative geometry, strolling towards quantum gravity*, *J. Physics. Conf. Series.* **634** (2015) 012001.
9. *Twisted spectral geometry for the standard model*, *J. Phys. Conf. Ser.* **626** (2015) 012044.
8. *Designing the sound of a cut-off drum*, *Proceedings of Science (FFP2014)* 144 (2015).
7. *Higgs mass in noncommutative geometry*, with A. Devastato and F. Lizzi, *Fortschritte der Physik* **62** 9-10 (2014) 863-868.
6. *Length & distance on quantum space*, with L. Tomassini, *Proceedings of Science (CORFU2011)* **040** (2012).
5. *First results of Noether theorem for Hopf-algebra spacetime symmetries*, with G. Amelino-Camelia, G. Gubitosi, A. Marciano, F. Mercati, D. Pranzetti, R. Tacchi, *Progress of Theoretical Physics Supplement* **171** (2007) 65-78.

4. *Is life a thermal horizon ?* J. Phys.: Conf. Ser. **67** (2007) 012034.
3. *A brief remark on Unruh effect and causality*, J. Phys.: Conf. Ser. **68** (2007) 012027.
2. *Smoother than a circle: How noncommutative geometry provides the torus with an egocentred metric*, proceedings of Deva intl. conf. differential geometry and physics, Cluj university press (2006) Roumania.
1. *Carnot-Carathéodory metric vs gauge fluctuation in noncommutative geometry*, proceedings of the intl. conf. on high energy and mathematical physics of Marrakech, African Journal of Mathematical physics **3** (2006) 157-162.

Editorial work

- special issue *Optimal transport and noncommutative geometry* to appear in Contemp. Maths. **676**, following the november 2014 workshop in Besançon, as a part of the annual meeting of the french *Groupe De Recherche* in noncommutative geometry.
- proceedings of the noncommutative geometry session in the conference *Conceptual and technical challenge of quantum gravity*, Roma october 2014, published in J. Physics. Conf. Series. **634** (2015).

Genova, September 19, 2016

