

SPIROS COTSAKIS
Full list of publications

1 Full list of publications

1. Theories of Star Formation.
S. Cotsakis, MSc Thesis, University of Sussex Archives, 1987.
2. Inflation and the Conformal Structure of Higher-Order Gravity Theories.
J. D. Barrow and S. Cotsakis, *Phys. Lett.* **B214** (1988) 515–518.
3. Chaotic Behaviour in Higher-Order Gravity Theories.
J. D. Barrow and S. Cotsakis, *Phys. Lett.* **B232** (1989) 172–176.
4. Cosmological Models in Higher-Order Gravity.
S. Cotsakis, PhD Thesis, University of Sussex Archives, 1990.
5. Self-Regenerating Inflationary universe in higher-order gravity in arbitrary dimension.
J. D. Barrow and S. Cotsakis, *Phys. Lett.* **B258** (1991) 299–304.
6. Quiescent Self-Regenerating Universe.
S. Cotsakis, In *Proceedings of the First Greek Astronomical Meeting*, P. Laskarides, (ed.), Athens 1992, pp. 135–140.
7. Chaos in the Universe: Myth or Reality?
S. Cotsakis, *Nonlinear News* 3 (1992) 25–30 (in Greek).
8. Conformal Transformations Single Out a Unique Measure of Distance.
S. Cotsakis, *Phys. Rev.* **D47** (1993) 1437–1439; Erratum: *Phys. Rev.* **D49** (1994) 1145.
9. Mixmaster Universe in Fourth-Order Gravity Theories.
S. Cotsakis, J. Demaret, Y. de Rop and L. Querella, *Phys. Rev.* **D48** (1993) 4595–4603.
10. Stability of FRW Cosmology in Higher Order Gravity.
S. Cotsakis and G. Flessas, *Phys. Rev.* **D48** (1993) 3577–3584.
11. Generalized No-Hair Theorems.
S. Cotsakis and G. Flessas, *Phys. Lett.* **B319** (1993) 69–73.
12. Painlevé Analysis of the Mixmaster Universe.
S. Cotsakis and P. G. L. Leach, *J. Phys.* **A27** (1993) 1625–1631.
13. Power-Law Inflation and Conformal Transformations.
S. Cotsakis and P. Saich, *Class. Quant. Grav.* **11** (1994) 383–387.
14. Escape Rates for the Quiescent Self-Regenerating Universe.
S. Cotsakis, *Phys. Lett.* **B328** (1994) 270–273.
15. Minimally Coupled Scalar Field Wormholes.
S. Cotsakis, P. G. L. Leach and G. Flessas, *Phys. Rev.* **D49** (1994) 6489–6492.
16. Comment on a Paper Concerning Symmetries of Equations of Motion and Equivalent Lagrangians.
G. Flessas, P. G. L. Leach and S. Cotsakis, *Can. J. Phys.* **72** (1994) 86–88.

17. On Noether's formulation of her theorem.
G. Flessas, P. G. L. Leach and S. Cotsakis, *Can. J. Phys.* **73** (1995) 543.
18. Past-Instability Conjecture and Cosmological Attractors in Generalized Isotropic Universes.
S. Cotsakis and G. Flessas, *Phys. Rev.* **D51** (1995) 4160–4168.
19. Graviton Creation and Conformal Non Invariance in Higher Order Gravity Theories.
S. Cotsakis and G. Flessas, *Phys. Rev.* **D52** (1995) 5783–5786.
20. Reply to Two Comments by Teyssandier and by Schmidt.
S. Cotsakis, *Phys. Rev.* **D52** (1995) 6199–6200.
21. Non-Linear Lagrangians and the Isotropy of the Universe.
J. Miritzis and S. Cotsakis, *Phys. Lett.* **B383** (1996) 377–382.
22. Global Structure and Evolution in General Relativity.
S. Cotsakis and G. W. Gibbons, (eds.) Springer LNP, **460** (1996).
23. Adiabatic Invariants and Mixmaster Catastrophes.
S. Cotsakis, R. Lemmer and P. G. L. Leach, *Phys. Rev.* **D57** (1998) 4691–4698.
24. Proof of the Cosmic No-Hair Conjecture for Some Quadratic Homogeneous Cosmologies.
S. Cotsakis and J. Miritzis, *Class. Quant. Grav.* **15** (1998) 2795–2801.
25. Symmetries of homogeneous cosmologies.
S. Cotsakis, P.G.L. Leach and H. Pantazi, *Grav. Cosm.* **4** (1998) 314–325.
26. Inflation, Baby-Universes and Hawking's Proposal.
S. Cotsakis, Oikonomikos Taxidromos, 5 November 1998, 118-120 (in Greek).
27. Mathematical problems in higher order gravity and cosmology.
S. Cotsakis, In *Proceedings of the Eighth Marcel Grossman Meeting on General Relativity*, T. Piran and R. Ruffini, eds., (World Scientific, 1999), pp. 505–507.
28. Variational and conformal structure of nonlinear metric-connection gravitational lagrangians.
S. Cotsakis, J. Miritzis and L. Querella, *J. Math. Phys.* **40** (1999) 3063–3071.
29. p -Brane Black Holes and Post-Newtonian Approximation.
S. Cotsakis, V. Ivashchuk and V. Melnikov, *Grav. Cosm.* **5** (1999) 52–57.
30. Ever-Expanding, Isotropizing, Quadratic Cosmologies.
S. Cotsakis, G.P. Flessas, P.G.L. Leach and L. Querella, *Grav. Cosm.* **6** (2000) 282–290.
31. Symmetries, Singularities and Integrability in Complex Dynamics I: The reduction problem.
P.G.L. Leach, S. Cotsakis and G.P. Flessas, *J. Nonl. Math. Phys.* **7** (2000) 445–479.
32. Integrable Spherically Symmetric p -Brane models Associated with Lie Algebras.
S. Cotsakis, V.R. Gavrilo and V.N. Melnikov, *Grav. Cosm.* **6** (2000) 66–75.
33. Symmetries, Singularities and Integrability in Complex Dynamics II: Rescalings and Time-Translations in 2D Systems.
P.G.L. Leach, S. Cotsakis and G. P. Flessas, *J. Math. Anal. Appl.* **251** (2000) 587–608.
34. Symmetries, Singularities and Integrability in Complex Dynamics IV: Painlevé Integrability of Isotropic Cosmologies.
J. Miritzis, P.G.L. Leach and S. Cotsakis, *Grav. Cosm.* **6** (2000) 282-290.

35. Mathematical and Quantum Aspects of Relativity and Cosmology.
S. Cotsakis and G. W. Gibbons, (eds.) Springer LNP, **537** (2000).
36. Symmetries, Singularities and Integrability in Complex Dynamics III: Approximate Symmetries and Invariants.
P.G.L. Leach, S. Moyo, S. Cotsakis and R. Lemmer, *J. Nonl. Math. Phys.* **8** (2001) 139-156.
37. Symmetries, Singularities and Integrability in Complex Dynamics V: Complete Symmetry Groups of Certain Relativistic Spherically Symmetric Systems.
P.G.L. Leach, M.C. Nucci and S. Cotsakis, *J. Nonl. Math. Phys.* **8** (2001) 475–490.
38. Symmetries, Singularities and Integrability in Complex Dynamics VI: Painlevé Integrability of FRW-Scalar Cosmologies.
P.G.L. Leach, S. Cotsakis and J. Miritzis, *Grav. Cosm.* **7** (2001) 311–320.
39. Symmetries, Singularities and Integrability in Nonlinear Mathematical Physics and Cosmology.
S. Cotsakis and P. G. L. Leach, In *Proceedings of the Fourth International Conference on Symmetries in Nonlinear Mathematical Physics, Proc. Inst. Math. N.A.S. Ukraine* **43** (2002) 128-135.
40. Algebraic Integrability of FRW-Scalar Cosmologies.
S. Cotsakis and J. Miritzis, In *Proceedings of the Ninth Marcel Grossman Meeting on General Relativity*, V. Gurzadyan, R.T. Jantzen and R. Ruffini (eds.) (World Scientific, 2002) pp. 1943-1945.
41. Scalar-Tensor σ -Cosmologies.
S. Cotsakis and J. Miritzis, In *Proceedings of the Ninth Marcel Grossman Meeting on General Relativity*, V. Gurzadyan, R.T. Jantzen and R. Ruffini (eds.) (World Scientific, 2002) pp. 1945-1947.
42. Current Trends in Mathematical Cosmology.
S. Cotsakis, In *Modern Theoretical and Observational Cosmology*, S. Cotsakis and M. Plionis (eds.) (Kluwer, ASSL**276**, 2002), pp. 5–18.
43. A Note on Wavemap-Tensor Cosmologies.
S. Cotsakis and J. Miritzis, In *Modern Theoretical and Observational Cosmology*, S. Cotsakis and M. Plionis (eds.), Kluwer, ASSL**276**, 2002, pp 67–74.
44. Is Nature Generic?
S. Cotsakis and P. G. L. Leach, In *Cosmological Crossroads*, S. Cotsakis and E. Papantonopoulos (eds.), Springer, LNP**592**, 2002, pp. 3–15.
45. Cosmological Singularities.
S. Cotsakis, In *Cosmological Crossroads*, S. Cotsakis and E. Papantonopoulos (eds.), (Springer, LNP**592**, 2002) pp. 59–94.
46. Global Hyperbolicity and Completeness.
Y. Choquet-Bruhat and S. Cotsakis, *J. Geom. Phys.* **43** (2002) 345–350.
47. Cosmological Crossroads.
S. Cotsakis and E. Papantonopoulos, (eds.) Springer LNP, **592** (2002).
48. Theoretical and Observational Cosmology.
M. Plionis and S. Cotsakis, (eds.) Kluwer ASSL, **276** (2002).

49. Completeness Theorems in General relativity.
Y. Choquet-Bruhat and S. Cotsakis, In *Proceedings of the 10th Greek Relativity Conference*, K. D. Kokkotas and N. Stergioulas (eds.) (World Scientific, 2003) pp. 145–149.
50. Global Hyperbolicity of Sliced Spaces.
S. Cotsakis, *Gen. Rel. Grav.* **36** (2004) 1183–1188.
51. Future Singularities of Isotropic Cosmologies.
S. Cotsakis and I. Klaoudatou, *J. Geom. Phys.* **55** (2005) 306–315.
52. Modern Approaches to Cosmological Singularities.
S. Cotsakis and I. Klaoudatou, In *Proceedings of the 11th Greek Relativity Meeting*, *J. Phys. Conf. Ser.* **8** (2005) 150.
53. Slice Energy and Theories of Gravitation.
S. Cotsakis, In *Proceedings of the 11th Greek Relativity Meeting*, *J. Phys. Conf. Ser.* **8** (2005) 39–48.
54. Singular Isotropic Cosmologies and Bel-Robinson Energy.
S. Cotsakis and I. Klaoudatou, In *Proceedings of the A. Einstein Century International Conference*, J. -M. Alimi and A. Füzfa, (eds.) (2005) pp. 842–7.
55. The Future of Spacetime.
S. Cotsakis, 7 pages (2005) (in Greek).
56. Eleventh Conference on Recent Developments in Gravity.
S. Cotsakis and J. Miritzis, (eds.) *J. Phys. Conf. Series.* **8** (2005).
57. Newtonian Melodies.
S. Cotsakis, *Discovery & Science*, 10 (2006) 58–65 (in Greek).
58. Space and Time, Gravity and Matter: Einstein’s Enigma.
S. Cotsakis, 6 pages (2006) (in Greek).
59. Cosmological Singularities and Bel-Robinson Energy.
S. Cotsakis and I. Klaoudatou, *J. Geom. Phys.* **57** (2007) 1303–1312.
60. Future Singularities and Completeness in Cosmology.
S. Cotsakis, In *Proceedings of the Thessaloniki Meeting on Cosmology and Gravitational Physics*, N. Spyroy, N. Stergioulas and C. Tsagas (eds.), pp. 119–129.
61. The Dominant Balance at Cosmological Singularities.
S. Cotsakis and J. D. Barrow, In *Proceedings of the Greek Relativity Meeting NEB12, June 29-July 2, 2006, Nauplia, Greece*, *J. Phys. Conf. Ser.* **68** (2007) 012004.
62. Bel-Robinson energy and the nature of singularities in isotropic cosmologies.
I. Klaoudatou and S. Cotsakis, In *Proceedings of the Greek Relativity Meeting NEB12, June 29-July 2, 2006, Nauplia, Greece*, *J. Phys. Conf. Ser.* **68** (2007) 012010.
63. Singularities of varying light speed cosmologies.
J. Miritzis and S. Cotsakis, In *Proceedings of the Greek Relativity Meeting NEB12, June 29-July 2, 2006, Nauplia, Greece*, *J. Phys. Conf. Ser.* **68** (2007) 012019.
64. Asymptotics of flat, radiation universes in quadratic gravity.
S. Cotsakis and A. Tsokaros, *Phys. Lett.* **B651** (2007) 341–344.

65. Flat, radiation universes with quadratic corrections and asymptotic analysis.
S. Cotsakis and A. Tsokaros, In Proceedings of the MG11 Meeting, H. Kleinert, R. J. Jantzen and R. Ruffini, (World Scientific, 2008), pp. 2045-7.
66. Braneworld cosmological singularities.
I. Antoniadis, S. Cotsakis and I. Klaoudatou, In Proceedings of the MG11 Meeting, H. Kleinert, R. J. Jantzen and R. Ruffini, (World Scientific, 2008), pp. 2054-6.
67. Talking about singularities.
S. Cotsakis, In Proceedings of the MG11 Meeting on General Relativity, H. Kleinert, R. J. Jantzen and R. Ruffini, (World Scientific, 2008), pp. 758-68.
68. Slice Energy in Higher-Order Gravity Theories and Conformal Transformations.
S. Cotsakis, Grav. Cosm. 14 (2008) 176-183.
69. A General Sudden Cosmological Singularity.
J. D. Barrow, S. Cotsakis and A. Tsokaros, Class. Quant. Grav. 27 (2010) 165017.
70. Brane singularities and their avoidance.
I. Antoniadis, S. Cotsakis and I. Klaoudatou, Class. Quant. Grav. 27 (2010) 235018.
71. The formal construction of sudden cosmological singularities.
J. D. Barrow, S. Cotsakis and A. Tsokaros, In Proceedings of the MG12 Meeting on General Relativity, T. Damour, R. J. Jantzen and R. Ruffini, Eds. (World Scientific, 2012), pp. 1793-5.
72. Singularities in cosmologies with interacting fluids.
S. Cotsakis and G. Kittou, Phys. Lett. B. 712 (2012) 16-21, arXiv:1202.1407.
73. Brane singularities with mixtures in the bulk.
I. Antoniadis, S. Cotsakis, I. Klaoudatou, Fortschr. Phys. 61 (2013) 20-49, arXiv: 1206.0090.
74. The initial state of generalized radiation universes.
S. Cotsakis, G. Kolionis, A. Tsokaros, Phys. Lett. B721 (2013) 1-6, arXiv:1211.5255.
75. Structure of infinity in cosmology.
S. Cotsakis, Int. J. Mod. Phys. D22 (2013) 1330003, arXiv:1212.6737.
76. Asymptotic Poincaré compactification and finite-time singularities.
S. Cotsakis, Grav. Cosm. 19 (2013) 240, arXiv:1301.4778.
77. Series expansions and sudden singularities.
J. D. Barrow, S. Cotsakis, A. Tsokaros, in: Proceedings of the MG13 Meeting on General Relativity, Stockholm, July 2012.
78. Limits of isotropic universes with interacting fluids.
S. Cotsakis, G. Kittou, in: Proceedings of the MG13 Meeting on General Relativity, Stockholm, July 2012.
79. Asymptotic states of generalized universes with higher derivatives.
S. Cotsakis, G. Kolionis, A. Tsokaros, in: Proceedings of the MG13 Meeting on General Relativity, Stockholm, July 2012.
80. Generic regular universes in higher order gravity theories.
S. Cotsakis, D. Trachilis, A. Tsokaros, in: Proceedings of the MG13 Meeting on General Relativity, Stockholm, July 2012.

81. Dynamics and asymptotics of braneworlds.
I. Antoniadis, S. Cotsakis, I. Klaoudatou, in: Proceedings of the MG13 Meeting on General Relativity, Stockholm, July 2012.
82. Geodesics at Sudden Singularities.
J. D. Barrow, S. Cotsakis, Phys. Rev. D88 (2013) 067301, arXiv:1307.5005.
83. Flat limits of curved interacting cosmic fluids.
S. Cotsakis and G. Kittou, Phys. Rev. D88 (2013) 083514, arXiv:1307.0377.
84. Enveloping branes and braneworld singularities.
I. Antoniadis, S. Cotsakis, I. Klaoudatou, Eur. Phys. J. C74 (2014) 3192, arXiv: 1406.0611.
85. Ambient cosmology and spacetime singularities.
I. Antoniadis, S. Cotsakis, Eur. Phys. J. C75 (2015) 1-12, CERN-PH-TH/2014-176, arXiv:1409.2220.
86. Topology of the ambient boundary and the convergence of causal curves.
I. Antoniadis, S. Cotsakis, Mod. Phys. Lett. A30 (2015) 1550161, arXiv:1505.04737.
87. Asymptotic vacua with higher derivatives.
S. Cotsakis, S. Kadry, G. Kolionis, A. Tsokaros, Phys. Lett. B755 (2016) 387-392, arXiv:1303.2234.
88. The large-scale structure of the ambient boundary.
I. Antoniadis, S. Cotsakis, (to appear) In: Proceedings of the Fourteenth Marcel Grossman Meeting on General Relativity, edited by M. Bianchi, R. T. Jantzen, R. Ruffini (World Scientific, Singapore, 2017); arXiv:1512.09216.
89. The causal order on the ambient boundary.
I. Antoniadis, S. Cotsakis, K. Papadopoulos, Mod. Phys. Lett. A31 (2016) 1650122, arXiv:1603.08117.
90. Curved branes with regular support.
I. Antoniadis, S. Cotsakis and I. Klaoudatou, Eur. Phys. J. C76 (2016) 511; arXiv: 1606.09453.
91. The regular state in higher-order gravity.
S. Cotsakis, S. Kadry, D. Trachilis, Int. J. Mod. Phys. A31 (2016) 1650130 (22 pages), arXiv:1212.2412.
92. Infinity in string cosmology: A review through open problems.
I. Antoniadis, S. Cotsakis, Int. J. Mod. Phys. D26 (2017) 1730009 (23 pages), arXiv:1610.01802.
93. The singularity problem in brane cosmology.
I. Antoniadis, S. Cotsakis, Universe 3 (2017) 11; arXiv:1702.01908.
94. Cosmological wave maps.
S. Cotsakis, J. Miritzis and K. Tzanni, Int. J. Mod. Phys. A34 (2019) 1950092; arXiv:1905.11049.
95. Inflation without a trace of Lambda.
J.D. Barrow, S. Cotsakis, Eur. Phys. J. C80 (2020) 839; arXiv:1907.02928
96. The Generic Sudden Singularity in Brans-Dicke Theory.
J.D. Barrow, S. Cotsakis and D. Trachilis, Eur. Phys. J. C 80, 1197 (2020); arXiv: 2009.01732
97. Onset of synchronization in coupled Mixmaster oscillators.
S. Cotsakis, Phil. Trans. R. Soc. A380 (2022) 20210189; arXiv: 2010.00298
98. The radiation instability in modified gravity.
S. Cotsakis, D. Trachilis, Int. J. Mod. Phys. A36 (2021) 2150060; arXiv: 2012.05850

99. Geodesic incompleteness and partially covariant gravity.
I. Antoniadis, S. Cotsakis; Universe 7 (2021) 126; arXiv:2102.07806 [gr-qc]
100. Regular braneworlds with nonlinear bulk-fluids.
I. Antoniadis, S. Cotsakis, I. Klaoudatou, Eur. Phys. J. C 81, 771 (2021); arXiv: 2106.15669
101. Primordial synchronization of Mixmaster spatial points.
S. Cotsakis, In: Proceedings of the Sixteenth Marcel Grossman Meeting on General Relativity, edited by M. Bianchi, R. T. Jantzen, R. Ruffini (World Scientific, Singapore, 2021), pp. 2657-2662; arXiv:2109.02947
102. Brane-world asymptotics in a nonlinear fluid bulk.
I. Antoniadis, S. Cotsakis, I. Klaoudatou, In: Proceedings of the Sixteenth Marcel Grossman Meeting on General Relativity, edited by M. Bianchi, R. T. Jantzen, R. Ruffini (World Scientific, Singapore, 2021), pp. 2645-2656; arXiv:2110.15077
103. Brane-world singularities and asymptotics of five-dimensional bulk fluids.
I. Antoniadis, S. Cotsakis, I. Klaoudatou, Phil. Trans. R. Soc. A 380 (2022) 20210180; arXiv:2110.15079
104. The conformal cosmological potential.
S. Cotsakis, I. Klaoudatou, G. Kolionis, J. Miritzis, D. Trachilis, Astronomy 1 (2022) 17–35; arXiv:2202.06536
105. The future of mathematical cosmology, Volume A.
S. Cotsakis and A. P. Yefremov, (Eds.) Phil. Trans. R. Soc. A.380 (2022) Theme Issue 2222
106. The future of mathematical cosmology, Volume B.
S. Cotsakis and A. P. Yefremov, (Eds.) Phil. Trans. R. Soc. A.380 (2022) Theme Issue 2230
107. Preface to ‘The future of mathematical cosmology’.
S. Cotsakis and A. P. Yefremov, Phil. Trans. R. Soc. A. 380 (2022) 20210002
108. 100 years of mathematical cosmology: Models, theories, and problems, Part A.
S. Cotsakis and A. P. Yefremov, Phil. Trans. R. Soc. A380 (2022) 20210191; arXiv:2203.16443
109. 100 years of mathematical cosmology: Models, theories, and problems, Part B.
S. Cotsakis and A. P. Yefremov, Phil. Trans. R. Soc. A380 (2022) 20210171; arXiv:2203.16443
110. A time slice of mathematical cosmology.
S. Cotsakis and A. P. Yefremov, Grav. Cosm. 28 (2022) 99-101
111. On the 100th anniversary of mathematical cosmology.
S. Cotsakis and A. P. Yefremov, Metaphysica 43 (2022) 59-65 (in Russian)
112. Localizing branes with bifurcating bulks.
I. Antoniadis, S. Cotsakis, J. Miritzis, Eur. Phys. J. C82 (2022) 785; arXiv:2205.08125
113. Trans-Planckian censorship and spacetime singularities.
S. Cotsakis, J. Miritzis, Mathematics 11 (2023) 633; arXiv:2301.00156
114. Dynamical synchronization, the horizon problem, and initial conditions for inflation.
S. Cotsakis, Lett. HEP 322 (2023) 1; arXiv:2208.07104
115. Dispersive Friedmann universes and synchronization.
S. Cotsakis, Gen. Rel. Grav. 55 (2023) 61; arXiv:2208.07892

116. The cosmological frame principle and cosmic acceleration.
S. Cotsakis, J.P. Mimoso, J. Miritzis, Eur. Phys. J. C 83, 735 (2023); arXiv:2304.12733
117. Sudden Shock Waves in modified gravity.
I. Antoniadis, S. Cotsakis, D. Trachilis, Eur. Phys. J. C. 83 (2023) 491; arXiv:2304.13291
118. Legendre scalarization in gravity and cosmology.
S. Cotsakis, J.P. Mimoso, J. Miritzis, Eur. Phys. J. C. 83 (2023) 433; arXiv:2305.04011
119. Bifurcation diagrams for spacetime singularities and black holes.
S. Cotsakis, Eur. Phys. J. C 84:35 (2024) 1-38; arXiv:2311.16000
120. The crease flow on null hypersurfaces.
S. Cotsakis, Eur. Phys. J. C 84, 391 (2024); arXiv:2312.08023v2
121. Friedmann-Lemaître universes and their metamorphoses.
S. Cotsakis, Eur. Phys. J. C (2025) 85:579; arXiv:2411.17286
122. Structural Stability and General Relativity.
S. Cotsakis, Universe 11(7) (2025) 209; arXiv:2412.04283
123. Cosmic acceleration as a saddle–node bifurcation: background identities and structure.
S. Cotsakis, Phil. Trans. R. Soc. (2026) (accepted); arXiv:2502.20430v2;
124. Mode interactions in scalar field cosmology.
S. Cotsakis and I. Antoniadis, Phil. Trans. R. Soc. (2026) (accepted); arXiv:2512.04607v2