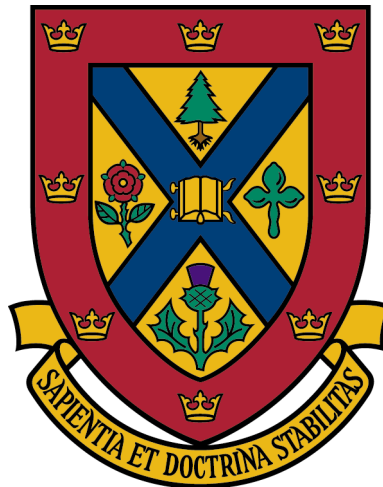


**Curriculum Vitae**  
**(Short version)**

**Kayll Lake**



**June 2022**

## EDUCATION

<u>Degree</u>	<u>Course</u>	<u>University</u>	<u>Year</u>
B. Sc.	Mathematics and Physics	Toronto	1971
M. Sc.	Astrophysics	Toronto	1972
Ph. D.	General Relativity	Toronto	1977

## PROFESSIONAL CERTIFICATION

**P. Phys. License No. 174**

## POSITIONS

<u>Dates</u>	<u>Position</u>	<u>Department</u>	<u>Institution</u>
1977-79	NSERC Postdoctoral Fellow*	Theoretical Physics Institute	University of Alberta
1979-82	Assistant Professor	Physics	Queen's
1982-87	Associate Professor	Physics	Queen's
1987-	Professor	Physics	Queen's

\*Supervisor, Werner Israel, FRS.

## HONOURS

1967 - Ontario Scholar, C.L. Burton Scholarship in Mathematics, Physics & Chemistry, University of Toronto

1971 - Gold Medal in Mathematics and Physics, University of Toronto Summer Fellowship

1973/76 - National Research Council of Canada Postgraduate Scholarship

1977/79 - NSERC Postdoctoral Fellowship

1980/90 - NSERC University Research Fellow

Life member of the International Society on General Relativity and Gravitation

American Physical Society lifetime achievement award “Outstanding Referee” (2008)

### **SERVICE TO QUEEN’S UNIVERSITY**

QUFA Vice President July 2015 - July 2017

QUFA President July 2017 - July 2019

QUFA Past President July 2019 – December 2021

### **SCHOLARLY & PROFESSIONAL ACTIVITIES**

Referee for international scientific publications including:

Physical Review Letters

Journal of Classical and Quantum Gravity

The Physical Review D

Journal of the International Society on General Relativity

Journal of Symbolic Computation

Astrophysical Journal

Astrophysical Journal Letters

Monthly Notices of the Royal Astronomical Society

Journal of The Royal Society of London A

Journal of Mathematical Physics

Former reviewer for Mathematical Reviews

Referee for NSERC, FRD (South Africa) (Operating grants)

Member NSERC GSC 17 (2008), NSERC Evaluation Group 1505 Physics (2009), Group chair PHYS06 Theoretical/Mathematical Physics (2010,2011),

External referee on theses, promotions, honorary degrees, Royal Society of Canada

## CAREER SUPERVISION OF UNDERGRADUATE THESES AND GRADUATE STUDENTS

	<u>Completed</u>	<u>In Progress</u>	<u>Inactive</u>
B.Sc. B.A.Sc..	2 per year	-	-
M.Sc.	15	-	-
Ph.D.	8	4	-

## GRADUATE COURSES TAUGHT

814 - Extragalactic Astronomy  
 815 - Stellar Structure and Evolution  
 816 - Cosmic Gas Dynamics  
 823 - Gravitation and Cosmology  
 917 - Astronomy and Cosmology  
 926 - Advanced Gravitation Theory

## RESEARCH FUNDING

<u>Year</u>	<u>Source</u>	<u>Type</u>	<u>Amount</u>
1979 -80	Departmental	Operating	\$500.00
1979 -80	ARC	Operating	\$2,000.00
1980-81	NSERC	Operating	\$5,000.00
	NSERC	Operating	\$10,000.00
1981-82	NSERC	Operating	\$13,000.00
1982-83	NSERC	Operating	\$17,605.00
1983-84	NSERC	Operating	\$26,500.00
1984-85	NSERC	Operating	\$27,825.00
1985	ARC	Operating	\$5,000.00
1985-86	NSERC	Operating	\$32,000.00
1986-87	NSERC	Operating	\$32,000.00
1987-88	NSERC	Operating	\$32,000.00
1988-89	NSERC	Operating	\$35,000.00
1989-90	NSERC	Operating	\$35,000.00
1990-91	NSERC	Operating	\$35,000.00
1991-92	NSERC	Operating	\$30,000.00
1992-93	NSERC	Operating	\$30,000.00

1992	ARC	Operating	\$3,276.00
1992	ARC	Operating	\$3,000.00
1993-94	NSERC	Operating	\$30,000.00
1994-95	NSERC	Operating	\$18,000.00
1994-95	NSERC	Equipment	\$16,709.00
1994	ARC	Equipment	\$2,000.00
1996-97	NSERC	Operating	\$18,000.00
1996-97	NSERC	Equipment	\$225,000.00
		(Co investigator)	
1997-98	NSERC	Operating	\$18,000.00
1997-98	NSERC	Equipment	\$13,264.00
1998-99	NSERC	Operating	\$19,800.00
1999-2000	NSERC	Operating	\$20,790.00
2000-01	NSERC	Operating	\$20,790.00
2000	NSERC	Equipment	\$16,494.00
2001-2002	NSERC	Operating	\$35,000.00
2002-2003	NSERC	Equipment	\$15,000.00
2002-2003	NSERC	Operating	\$35,000.00
2003-2004	NSERC	Operating	\$35,000.00
2004-2005	NSERC	Operating	\$35,000.00
2005-2006	NSERC	Discovery	\$35,000.00
2006-2007	NSERC	Discovery	\$35,460.00
2007-2008	NSERC	Discovery	\$35,460.00
2008-2009	NSERC	Discovery	\$35,460.00
2009-2010	NSERC	Discovery	\$35,460.00
2010-2011	NSERC	Discovery	\$35,460.00
2011-2012	NSERC	Discovery	\$37,000.00
2012-2013	NSERC	Discovery	\$37,000.00
2013-2014	NSERC	Discovery	\$37,000.00
2014-2015	NSERC	Discovery	\$37,000.00
2015-2016	NSERC	Discovery	\$37,000.00
2016-2017	NSERC	Discovery	\$50,000.00
2017-2018	NSERC	Discovery	\$50,000.00
2018-2019	NSERC	Discovery	\$50,000.00
2019-2020	NSERC	Discovery	\$50,000.00
2020-2021	NSERC	Discovery	\$50,000.00
2021-2022	NSERC	Discovery	\$50,000.00

## PUBLICATIONS

### Refereed Journal Papers (No conference proceedings.)

1. Honig, E., Lake, K. and Roeder, R.C. 1974, Behaviour of spacelike geodesics in the extended Schwarzschild manifold, **Physical Review D** **10**, 3155-3161.
2. Lake, K., and Roeder, R.C. 1975, Generalized frequency shift associated with tachyons and antiparticles, **Lett. Nuovo Cimento**, **16**, 17-21.
3. Lake, K., Roeder, R.C. and Honig, E. 1976, Application of time symmetry in certain time-orientable spacetimes, **Nuovo Cimento**, **32B**, 457-476.
4. Lake, K., Roeder, R.C. 1976, Blue-shift surfaces and stability of white holes", **Lett. Nuovo Cimento**, **16**, 17-21.
5. Lake, K., Roeder, R.C. 1977, Effects of a nonvanishing cosmological constant on the spherically symmetric vacuum manifold, **Physical Review D** **15**, 3513-3519.
6. Lake, K. and Roeder, R.C. 1978, Some remarks on surfaces of discontinuity in general relativity, **Physical Review D** **17**, 1935-1944.
7. Lake, K. 1978, White holes, **Nature** **273**, 599-601.
8. Lake, K. and Roeder, R.C. 1978, The present appearance of white holes, **Nature** **273**, 449-450.
9. Lake, K. and Roeder, R.C. 1978, On the optical appearances of white holes, **Astrophysical Journal** **226**, 37-49.
10. Lake, K. 1979, The Reissner-Nordstrom-de Sitter metric, the third law and cosmic censorship, **Physical Review D** **19**, 421-429.
11. Lake, K. 1979, Thin spherical shells, **Physical Review D** **19**, 2847-2849.
12. Lake, K. and Roeder, R.C. 1979, Note on the optical appearance of a star collapsing through its gravitational radius, **Astrophysical Journal** **232**, 277-281.
13. Lake, K. 1979, Note on degenerate Killing horizons, **Physical Review D** **20**, 370-372.
14. Lake, K. 1980, Local inhomogeneities in a Robertson-Walker background. I. General framework, **Astrophysical Journal** **240**, 744-750.

15. Lake, K. 1980, Local inhomogeneities in a Robertson-Walker background. II. Flux conditions at boundary surfaces, **Astrophysical Journal** **242**, 1238-1242.
16. Lake, K., and Nelson, L.A. 1980, Gravitational bounce, **Physical Review D** **22**, 1266-1269.
17. Lake, K. 1981, Thin shells and the surface gravity of black holes, **Lett. Nuovo Cimento** **30**, 186-188.
18. Lake, K. 1981, Comment on the time evolution of the cosmological redshift, **Astrophysical Journal** **247**, 17-18.
19. Lake, K. and Myra, E. 1981, Spectral shifts near compact objects, **Astrophysics and Space Science** **79**, 515-519.
20. Hellaby, C. and Lake, K. 1981, Local inhomogeneities in a Robertson-Walker background. III. Elementary growth rates in a flat background with a relativistic equation of state, **Astrophysical Journal** **251**, 429-435.
21. Lake, K. and Hellaby, C. 1981, Collapse of radiating fluid spheres, **Physical Review D** **24**, 3019-3022.
22. Lake, K. 1982, Collapse of radiating imperfect fluid spheres, **Physical Review D** **26**, 518-519.
23. Lake, K. 1982, Remark on peculiar corrections on the time evolution of the cosmological redshift, **Astrophysical Letters** **23**, 23-24.
24. Zhang, J-L., and Lake, K. 1982, Late stages in the collapse of radiating fluid spheres, **Physical Review D** **26**, 1479-1480.
25. Lake, K. 1983, Remark concerning spherically symmetric non-static solutions to the Einstein equations in the commoving frame, **General Relativity and Gravitation Journal** **15**, 357-361.
26. Hellaby, C. and Lake, K. 1983, Mass scales in a universe of dust and black-body radiation, **Astrophysical Letters** **23**, 81-85.
27. Krautter, A., Henriksen, R.H., and Lake, R. 1983, Pressure collimation of supersonic radio jets, **Astrophysical Journal** **269**, 81-93.
28. Zhang, J-L., Lake, K., Chau, W-Y., and Chang, K. 1983, Apparent transverse velocities in a static gravitational field, **Astrophysical Letters** **23**, 207-210.

29. Zhang, J-L., Chau, W.Y., Lake, K. and Stone, J. 1983, Static structure of general relativistic degenerate configurations: Effects of a core, **Astrophysics and Space Science** **96**, 417-430.
30. Lake, K. 1983, Comment on observable blueshifts near compact objects, **Astrophysics and Space Science** **97**, 203.
31. Lake, K. 1984, The big bang in the Tolman models, **Physical Review D** **29**, 771-772.
32. Lake, K., Hood, K. and Stone, J. 1984, On the latitudinal and radial motion of timelike vortical trajectories in the Kerr metric, **General Relativity and Gravitation Journal** **16**, 541-549.
33. Chau, W.Y., and Lake, K. 1984, Has a massive neutrino halo been observed around M87?, **Physics Letters** **134 B**, 409-411.
34. Chau, W.Y., Lake, K. and Stone, J. 1984, Static structure of general relativistic, partially degenerate self-gravitating lepton configurations. I. Numerical scheme, **Astrophysical Journal** **281**, 560-565.
35. Hellaby, C. and Lake, K. 1984, The redshift structure of the big bang in inhomogeneous cosmological models. I. Spherical dust solutions, **Astrophysical Journal** **282**, 1-10.
36. Lake, K. 1984, The equation of motion for bubble boundaries, **Physical Review D** **29**, 1861-1862.
37. Hellaby, C., and Lake, K. 1985, Shell crossing and the Tolman model, **Astrophysical Journal** **290**, 381- 387.
38. Pim, R., and Lake, K. 1985, Gravitational collapse of a radiating shell of matter, **Physical Review D** **31**, 233-240.
39. Lake, K., and Hellaby, C., 1985, Reply to collapse of radiating fluid spheres and cosmic censorship, **Physical Review D** **31**, 2695-2696.
40. Lake, K., and Pim, R. 1985, Development of voids in the thin-wall approximation. I. General characteristics of spherical vacuum voids, **Astrophysical Journal** **298**, 439-447.
41. Pim, R. and K. Lake, 1986, Development of voids in the thin-wall approximation. II. Radiation filled voids in a flat background, **Astrophysical Journal** **304**, 75-81.
42. Shaver, E. and K. Lake, 1986, Further remark concerning spherically symmetric nonstatic separable solutions to the Einstein equations in the comoving frame, **General Relativity and Gravitational Journal** **18**, 1079-1083.



43. Lake, K., 1986, Smooth formation of a persistent naked singularity, **Physics Letters A 116**, 17-19.
44. Waugh, B. and Lake, K. 1986, Backscattered radiation in the Vaidya metric near zero mass, **Physics Letters A 116**, 154-156.
45. Waugh, B. and Lake, K. 1986, Double-Null coordinates for the Vaidya metric, **Physical Review D 34**, 2978-2984.
46. Lake, K. and Boucher, P. 1987, Hydrostatic confinement of radio jets, **Astrophysical Journal 314**, 507-512.
47. Rajagopal, K. and Lake, K. 1987, Strengths of singularities in Vaidya spacetimes, **Physical Review D 35**, 1531-1532.
48. Pim, R. and Lake, K. 1988, Development of voids in the thin-wall approximation. III. Radiation filled voids in a non-flat background, **Astrophysical Journal 330**, 625-633.
49. Lake, K. 1988, Comment on naked singularities in self-similar spherical gravitational collapse, **Physical Review Letters 60**, 241.
50. Waugh, B. and Lake, K. 1988, Strengths of shell-focusing singularities in marginally bound collapsing self-similar Tolman spacetimes, **Physical Review D 38**, 1315-1316.
51. Shaver, E. and Lake, K. 1988, Singularities in separable metrics with spherical, plane, and hyperbolic symmetry, **General Relativity and Gravitation Journal 20**, 1007-1018.
52. Lake, K. 1988, Comment on dynamics of false vacuum bubbles, **Physical Review D 38**, 3844.
53. Lake, K. 1989, Spotting conformally flat solutions of the Einstein equations, **Physical Review D 40**, 1344-1345.
54. Waugh, B and Lake, K. 1989, Shell focusing singularities in spherically symmetric self-similar spacetimes, **Physical Review D 40**, 2137- 2139.
55. Lake, K. and Zannias, T. 1989, Fitting de Sitter space into a black hole, **Physics Letters A 140**, 291-293.
56. Shaver, E. and Lake, K. 1989, Nonstationary general-relativistic strings, **Physical Review D 40**, 3287-3301.
57. Lake, K. and Zannias, T. 1990, Naked singularities in self-similar gravitational collapse, **Physical Review D 41**, 3866-3868 (Rapid Communication).

58. Curry, C. and Lake, K. 1991, Vacuum solutions of Einstein's equations in double-null coordinates, **Classical and Quantum Gravity** **8**, 237- 243.
59. Lake, K. and Zannias, T. 1991, Structure of singularities in the spherical gravitational collapse of a charged null fluid, **Physical Review D** **43**, 1798-1802.
60. Lake, K. 1991, Naked singularities in gravitational collapse which is not self-similar, **Physical Review D** **43**, 1416-1417.
61. Lake, K. 1992, Precursory singularities in spherical gravitational collapse, **Physical Review Letters** **68**, 3129-3132.
62. Lake, K. 1992, An inhomogeneous slab cosmology, **Astrophysical Journal Letters** **401**, L1-L2.
63. Lake, K. 1993 Curvature invariants for Kantowski-Sachs metrics with source: A conformally invariant scalar field, **Journal of Mathematical Physics** **34**, 5900-5907.
64. Musgrave, P. and Lake, K. 1994, Scalar invariants of the radiation Kerr-Newman metric - A simple application of GRTensor, **Computers in Physics** **8**, 589-599.
65. Lake, K. and Musgrave, P. 1994, On the regularity of static spherically cylindrically and plane symmetric spacetimes at the origin, **General Relativity and Gravitation Journal** **29**, 917-925.
66. Sussman, R. and Lake, K. 1994, On spherically symmetric solutions admitting a spacelike conformal motion, **Classical and Quantum Gravity** **11**, 3081-3083. (Corrigenda 13 1278).
67. Leonard, S. and Lake, K. 1995, The Tinsley Diagram Revisited, **Astrophysical Journal Letters** **441**, L55-L56.
68. Musgrave, P. and Lake, K. 1995, Differential invariants and regularity, **Classical Quantum Gravity** **12**, L39-L41 (Letter to the Editor).
69. Musgrave, P. and Lake, K. 1996, Junctions and thin shells in general relativity using computer algebra: I. The Darmois-Israel formalism , **Classical and Quantum Gravity** **13**, 1885-1899.
70. Pollney, D., Musgrave, P., Santosuosso, K. and Lake, K. 1996, Algorithms for computer algebra calculations in spacetime I. The calculation of curvature, **Classical and Quantum Gravity** **13**, 2289-2309.

71. Musgrave, P. and Lake, K. 1997, Junctions and thin shells in general relativity using computer algebra: II. The null formalism, **Classical and Quantum Gravity** **14**, 1285-1294.
72. Santosuosso, K., Pollney, D., Pelavas, N., Musgrave, P. and Lake, K. 1998, Invariants of the Riemann tensor for Class B Warped Product Spacetimes, **Computer Physics Communications** **115**, 381-394.
73. Delgaty, M.S.R. and Lake, K. 1998, Physical Acceptability of Isolated, Static, Spherically Symmetric, Perfect Fluid Solutions of Einstein's Equations, **Computer Physics Communications** **115**, 395-415.
74. Lake, K. 2000, Gravitational Collapse of Dust with a Cosmological Constant, **Physical Review D** **62** (027301 p. 1-3).
75. Pelavas, N. and Lake, K. 2000, Measures of gravitational entropy: Self-similar spacetimes, **Physical Review D** **62** (044009 p. 1-5).
76. Ishak, M., Chamandy, L., Neary, N. and Lake, K. 2001, Exact Solutions with  $w$  – modes, **Physical Review D** **64** (024005 p. 1-6) (gr-qc/0007073).
77. Pelavas, N., Neary, N. and Lake, K. 2001, Properties of the instantaneous Ergo Surface of a Kerr Black Hole, **Classical and Quantum Gravity** **18**, 1319-1331 (gr-qc/0012052).
78. Neary, N., Ishak, M., and Lake, K. 2001, The Tolman VII solution, trapped null orbits and  $w$  - modes, **Physical Review D** **64** (084001 p. 1-5) (gr-qc/0104002).
79. Ishak, M., and Lake, K. 2001, Stability of Transparent Spherically Symmetric Thin Shells and Wormholes, **Physical Review D** **65**, (044011 p. 1-6), (gr-qc/0108058).
80. Ishak, M., and Lake, K. 2002, An Online Interactive Geometric Database Including Exact Solutions of Einstein's Field Equations, **Classical and Quantum Gravity** **19**, 505-514 (gr-qc/0111008).
81. Lake, K. 2002, Lensing in Kottler space, **Physical Review D** **65**, 087301 (gr-qc/0103057).
82. Lake, K. 2003, All static spherically symmetric perfect fluid solutions of Einstein's Equations, **Physical Review D** **67** 104015, (gr-qc/0209104).
83. Lake, K. 2003, Invariants of the Kerr Vacuum, **General Relativity and Gravitation Journal** **35** 2271-2277, (gr-qc/0302087)
84. Ishak, M. and Lake, K. 2003, An inverse approach to Einstein's equations for non-conducting fluids, **Physical Review D** **68**, 104031, (gr-qc/0304065)

85. Lake, K. 2003, An explicit global covering of the Schwarzschild-Tangherlini black holes, **J. Cosmol. Astropart. Phys. JCAP** **10** 007, (gr-qc/0306073)
86. Lake, K. 2004, Non conducting spherically symmetric fluids, **General Relativity and Gravitation Journal** **36** 193-197, (gr-qc/0209063)
87. Chruściel, P. T. and Lake, K. 2004, Cauchy horizons in Gowdy space times, **Classical Quant. Gravity** **21** S153-S169, (gr-qc/0307088)
88. Lake, K. 2004, Differential Invariants of the Kerr Vacuum, **General Relativity and Gravitation Journal** **36** 1159-1169, (gr-qc/0308038)
89. Lake, K. 2004, Galactic Potentials, **Physical Review Letters** **92**, 051101, (gr-qc/0302067)
90. Lake, K. 2004, Sudden future singularities in FLRW cosmologies, **Classical and Quantum Gravity** **21** L129-L132, (gr-qc/0407107)
91. Lake, K. 2005, The flatness problem and  $\Lambda$ , **Physical Review Letters** **94**, 201102 (2005), (astro-ph/0404319)
92. Steven Conroy and Kayll Lake 2005, Smooth transitions from Schwarzschild vacuum to de Sitter space, **Physical Review D** **71**, 124017 (2005), (gr-qc/0504036)
93. Kayll Lake 2006, Static Ricci-flat 5-manifolds admitting the 2-sphere, **Classical and Quantum Gravity** **23** 5871-5881 (gr-qc/0606005)
94. Kayll Lake 2006, Maximally extended, explicit and regular coverings of the Schwarzschild-de Sitter vacua in arbitrary dimension, **Classical and Quantum Gravity** **23** 5883-5895, (gr-qc/0507031)
95. Kayll Lake 2006, Integration of the Friedmann equation for universes of arbitrary complexity, **Physical Review D** **74**, 123505 (2006), (gr-qc/0603028)
96. Kayll Lake 2007, Testing the  $\Lambda$ CDM model (and more) with the time evolution of the redshift, **Physical Review D** **76**, 063508 (2007), (astro-ph/0703810)
97. Kayll Lake 2007, Scalar Polynomial Singularities in Power-Law Spacetimes, **General Relativity and Gravitation Journal** (in press), (arXiv:gr-qc/0702112v2)
98. Kayll Lake 2008, Transforming the Einstein static Universe into a physically acceptable static fluid sphere, **Physical Review D** **77**, 127502 (2008), (arXiv:0804.3092v2)

99. Cédric Grenon, Pascal J. Elahi and Kayll Lake 2008, Transforming the Einstein static Universe into physically acceptable static fluid spheres II: A two - fold infinity of exact solutions, **Physical Review D** **78**, 044028 (2008) (arXiv:0805.3329v2 )
100. Jonathan Loranger and Kayll Lake 2008, Generating Static Fluid Spheres by Conformal Transformations, **Physical Review D** **78**, 127501 (2008), (arXiv:0808.3515 )
101. Kayll Lake 2009, Generating static spherically symmetric anisotropic solutions of Einstein's equations from isotropic Newtonian solutions, **Physical Review D** **80**, 064039 (2009), (arXiv:0905.3546)
102. Cédric Grenon and Kayll Lake 2010, Generalized Swiss-cheese cosmologies: Mass scales, **Physical Review D** **81**, 023501 (2010) (arXiv:0910.0241)
103. Kayll Lake 2010, "Some notes on the Kruskal - Szekeres completion", **Classical and Quantum Gravity** **27** 097001 (gr-qc/1002.3600)
104. Kayll Lake 2010, "Particle Accelerators inside Spinning Black Holes", **Physical Review Letters** **104** 211102 (gr-qc/1001.5463)
105. Kayll Lake and Majd Abdelqader 2011, "More on McVittie's Legacy: A Schwarzschild - de Sitter black and white hole embedded in an asymptotically LCDM cosmology", **Phys. Rev. D** **84**, 044045 (2011) (gr-qc/1106.3666)
106. Cédric Grenon and Kayll Lake 2011, "Generalized Swiss-cheese cosmologies II: Spherical Dust", **Phys. Rev. D** **84**, 083506 (2011) (arXiv:1108.6320)
107. Philippe Landry, Majd Abdelqader and Kayll Lake 2012, "McVittie solution with a negative cosmological constant", **Phys. Rev. D** **86**, 084002 (2012) (arXiv:1207.6350)
108. Kayll Lake 2012, "Visualizing spacetime curvature via gradient flows. I. Introduction" **Phys. Rev. D** **86**, 104031 (2012) (arXiv:1207.5493)
109. Majd Abdelqader and Kayll Lake 2012, "Visualizing Spacetime Curvature via Gradient Flows II: An Example of the Construction of a Newtonian analogue", **Phys. Rev. D** **86**, 124037 (2012) (arXiv:1207.5496)
110. Majd Abdelqader and Kayll Lake 2013, "Visualizing Spacetime Curvature via Gradient Flows III: The Kerr metric and the transitional values of the spin parameter" **Phys. Rev. D** **88**, 064042 (2013) (arXiv:1308.1433)
111. William Ballik and Kayll Lake 2013, "The Vector Volume and Black Holes" **Phys. Rev. D** **88**, 104038 (2013) (arXiv:1310.1935)
112. Majd Abdelqader and Kayll Lake 2015, "An invariant characterization of the Kerr spacetime: Locating the horizon and measuring the mass and spin of rotating black holes

using curvature invariants" Editors' Suggestion *Phys. Rev. D* **91**, 084017 (2015)  
(arXiv:1412.8757)

113. Kayll Lake 2015, "Central density cusps in the Lemaître-Tolman solutions ", **Phys. Rev. D** **91**, 124036 (2015) (arXiv:1411.7326)

114. Kayll Lake and Thomas Zannias 2015, "On the global structure of Kerr-de Sitter spacetimes ", **Phys. Rev. D** **92**, 084003 (2015) (arXiv:1507.08984)

115. Kayll Lake 2017, "Revisiting the Darmois and Lichnerowicz junction conditions", **Gen Relativ Gravit** **49** 134, (arXiv:1705.01090)