

**RAMESH SHARMA***Department of Mathematics**University of New Haven**West Haven, Connecticut 06516 U.S.A.**Telephone: (203) 932-7292, Fax: (203)931-6035**E-mail address: [rsharma@newhaven.edu](mailto:rsharma@newhaven.edu)*

**EDUCATION:**        *1986 - Ph.D., University of Windsor, Ontario, Canada.*  
                           *Dissertation: Cauchy-Riemann Submanifolds of Semi-Riemannian*  
                           *Manifolds with Application to Relativity and Hydrodynamics.*

*1980 - Ph.D., Banaras Hindu University, India.*  
*Dissertation: Differentiable manifolds with polynomial structures.*

*1976 - M.Sc., Banaras Hindu University, India.*

*1974 - B.Sc., (Honors), Banaras Hindu University,*  
*India.*

**TRAINING:**        *2010 Graduate, Experiential Education Academy, National Society for*  
                           *Experiential Education, U.S.A.*

**AWARDS/HONORS:**

- *Excellence in Research/Creative Activity Award, University of New Haven, 2008.*
- *University Research Scholar Designation Award, University of New Haven, 2008-2014.*
- *University of New Haven Faculty Research Grants (2014,08,07,05,01, 1999, 98, 96, 94, 91).*
- *Selected for Who's Who Among America's Teachers, 2006.*
- *Fulbright Lecturing Grant (India), 2005.*
- *Yale University Visiting Faculty Fellowship (Yale University), 1994-95.*
- *Nominated for Distinguished Teaching Award at the University of New Haven, 1993, 1995.*
- *A Travel Fellowship of Connecticut Space Grant College Consortium (NASA) (1992).*

**TEACHING EXPERIENCE:***University of New Haven, West Haven, Connecticut.*

Professor:                Sept.1, 1997-Present.

Associate Professor:    Sept.1, 1992- Aug.31, 1997.

Assistant Professor:    Sept.1, 1988- Aug.31, 1992.

Courses Taught:        Pre-Calculus, College Algebra, Calculus I, II, III,

Differential equations, Linear Algebra, Complex Analysis, Differential Geometry, Tensors With Applications, Numerical Analysis, Matrix Theory & Applications

*Sri Sathya Sai Institute of Higher Learning, India:*

Visiting Professor: June-July (2019,18,17,16,15,14,13,12,11,10,09, 08, 07, 06), July-August 2005 (*Fulbright* Visiting Professor), June-July 04, July 03, July-Sept. 02, July (01, 2000, 99, 98, 96), Sep. –Nov. 95.  
 Courses Taught: Introduction to Manifolds, General Relativity, Numerical Analysis, Complex Analysis, Tensors, Differential Geometry.

*Michigan State University, Michigan:*

Instructor: (Sept.1, 1987- Aug.31, 1988).  
 Courses Taught: Calculus I and II, Advanced Calculus.

## **PUBLICATIONS:**

### **A. Edited Proceedings/Books:**

- Recent Advances in Riemannian and Lorentzian Geometries (Co-edited with K.L. Duggal), *Contemporary Mathematics, Volume 337 (Proceedings of a special session of American Mathematical Society Meeting, Baltimore, 2003), American Mathematical Society.*
- Symmetries of Spacetimes and Riemannian Manifolds (Monograph, Co-authored with K.L. Duggal), *Mathematics and its Applications*, Vol. 487, Kluwer Academic Press (Taken over by Springer), 1999.

### **B. Papers To Appear/Published In Refereed Journals/Proceedings:**

1. Ricci almost solitons with associated projective vector field (with S. Deshmukh), To appear in *Advances in Geometry*.
2. Remarks on scalar curvature and concircular field equation (with S. Deshmukh), To appear in *International Electronic Journal of Geometry*.
3.  $K$ -contact and Sasakian metrics as Ricci almost solitons (with A. Ghosh), *International Journal of Geometric Methods in Modern Physics* 18 (2021), 2150047 (12 pages).
4. Lagrangian Submanifolds of the nearly Kaehler 6-Sphere and Chen's equality, *Contemporary Mathematics* (American Mathematical Society) 756 (2020), 219-228.
5.  $D$ -homothetically deformed  $K$ -contact Ricci almost soliton (with H.G. Nagaraja), *Results in Mathematics* 75 (2020), 124 (8 pages).
6. Second order parallel tensors on singular quasi-constant curvature manifolds, *Journal of Geometry* 110(2019), 56, <https://doi.org/10.1007/s00022-019-052-0>.
7. Bochner-Kaehler and Bach flat manifolds (with A. Ghosh), *Archiv der Mathematik* 113 (2019), 551-560.

8. A note on Wronskians of real analytic functions (with S. Duong, F. Dosani and B. Dina), *Far East Journal of Mathematical Education* 19 (2019), 113-117.
9. Differentiable functions with constant Wronskians (with A. Wagner), *Minnesota Journal of Undergraduate Mathematics* 4 (2019), 4 pages.
10. Classification Of  $(k, \mu)$ -Contact Manifolds With Divergence Free Cotton And Vanishing Bach Tensors (with A. Ghosh), *Annales Polonici Mathematici* 122 (2019), 153-163.
11. Conformal and projective characterizations of an odd dimensional unit sphere, *Kodai Mathematical Journal* 42 (2018), 160-169.
12. Gradient Ricci solitons with a conformal vector field, *Journal of Geometry* (2018) 109: 33. <https://doi.org/10.1007/s00022-018-0439-x>
13. Some results on almost Ricci solitons and geodesic vector fields, *Beitrage zur Algebra und Geometrie*. 59(2018), 289-294.
14. Sasakian manifolds with purely transversal Bach tensor (with A. Ghosh), *Journal of Mathematical Physics* 58 (2017), 103502 (1-6).
15. Some remarks on Ricci solitons (with S. Balasubramanian and N. Udaykiran), *Journal of Geometry* 108 (2017), 1031-1037.
16. CR-submanifolds of semi-Riemannian Kaehler manifolds, Invited Book Chapter in: *Geometry of Cauchy-Riemann Submanifolds* (eds. S. Dragomir et al.), Springer, 2016.
17. On Lagrangian submanifolds of the nearly Kaehler 6-sphere (with S. Deshmukh), *Contemporary Mathematics* (American Mathematical Society), Vol. 674 (2016), 153-160.
18. Cosmological models through spatial Ricci flow, *International Journal of Geometric Methods in Modern Physics* 13 (2016), 1650069 (4 pages).
19. Remarks on a one-parameter family of singular matrices (with C. Pariso and M. Duda), *International Journal of Mathematical Education in Science and Technology* 46 (2015), 156-158.
20. A classification of Ricci solitons as  $(k, \mu)$ -contact metrics (with A. Ghosh), *Real and Complex Submanifolds, Springer Proceedings in Mathematics and Statistics* 106, Springer, Tokyo, 2014, 349-358.
21. Ricci solitons within the framework of contact geometry (with A. Ghosh), *Investigations in Mathematical Sciences* 4 (2014), 61-69 [Special issue dedicated to Late Professor Lars Valter Hormander].
22. Almost contact Lagrangian submanifolds of nearly Kaehler 6-sphere (with S. Deshmukh and F. Al-Solamy), *Results in Mathematics* 65 (2014), 143-153.

23. Almost Ricci solitons and  $K$ -contact geometry, *Monatshefte fur Mathematik* 175 (2014), 621-628.
24. Sasakian metric as a Ricci Soliton and related results (with A. Ghosh), *Journal of Geometry and Physics* 75 (2014), 1-6.
25. Contact hypersurfaces of a Bochner-Kaehler manifold (with A. Ghosh), *Results in Mathematics* 64 (2013), 155-163.
26. Ricci and Yamabe solitons in contact geometry, *Proceedings of Conference on Differential Geometry* (held at Bangalore University, India) 2013, 1-7.
27. A corrigendum to: Contact metrics admitting a conformal vector field, *Investigations in Mathematical Sciences* 3 (2013), 13-14
28. A generalization of  $K$ -contact and  $(\kappa, \mu)$ -contact manifolds (with A. Ghosh), *Journal of Geometry* 103 (2012), 431-443.
29. Contact metrics admitting a conformal vector field (Invited Paper), *Investigations in Mathematical Sciences* 2 (2012), 9-16.
30. A 3-dimensional Sasakian metric as a Yamabe soliton, *International Journal of Geometric Methods in Modern Physics* 9 (2012), 1220003 (5 pages).
31.  $K$ -contact metrics as Ricci solitons (with A. Ghosh), *Beitrage zur Algebra und Geometrie* 53 (2012), 25-30.
32. An inductive proof of the condition for AM-GM Equality (with C. Barratt), *Mathematical Gazette* (Cambridge University Press) 96 (2012), 131-133.
33. Synchronous space-times with pure trace extrinsic curvature slices, *Classical and Quantum Gravity* 28 (2011), 195021 (7 pp.).
34. Sasakian 3-manifold as a Ricci soliton represents the Heisenberg group (with A. Ghosh), *International Journal of Geometric Methods in Modern Physics* 8 (2011), 149-154.
35. Normal Vector As An Eigenvector Of The Weingarten Matrix (with N. Uday Kiran and M.S. Srinath), *International Electronic Journal of Geometry* 4 (2011), 125-128.
36. A Level Set Method-Based Derivation of Differential Equation for Developable Surfaces (with N. Uday Kiran and M.S. Srinath), *International Electronic Journal of Geometry* 3 (2010), 11-15.
37. *Contact geometry and Ricci solitons (With J.T. Cho)*, *International Journal of Geometric Methods in Modern Physics* 7 (2010), 951-960
38. Perfect fluids whose energy-momentum tensor is conformal Killing (with A. Ghosh), *Journal of Mathematical Physics* 51 (2010), 022504 (1-5).

39. Reviewing A.M.-G.M. equality by waiving positivity (with G. Brown, H. Biao and J. Wu), *International Journal of Pure and Applied Mathematics* 60 (2010), 229-322.
40. Conformal classification of  $(k, \mu)$ -contact manifolds (with Luc Vrancken), *Kodai Mathematical Journal* 33 (2010), 267-282.
41. Solutions of Einstein's equations with conformal Killing vector fields and initial data (Invited paper, with K.L. Duggal), *Nonlinear Studies* 17 (2010), 37-46.
42. Solutions of Einstein's equations with conformal symmetries and a contact slice (with K.L. Duggal), *Nonlinear Analysis: Theory, Methods & Applications* 71 (2009), e701-e705.
43. Lorentzian metric induced from a background Riemannian metric (with V.V. Reddy and S. Sivaramakrishnan), *International Journal of Pure and Applied Mathematics* 47 (2008), 343-351.
44. Contact metric manifolds with  $\eta$ -parallel torsion tensor (with A. Ghosh and J. T. Cho), *Annals Of Global Analysis and Geometry* 34 (2008), 287-299.
45. Certain results for  $K$ -contact and  $(k, \mu)$ -contact manifolds, *Journal Of Geometry* 89 (2008), 138-147.
46. Space-times through Hawking-Ellis construction with a background Riemannian metric (with V.V. Reddy and S. Sivaramakrishnan), *Classical and Quantum Gravity* 24 (2007), 3339-3345.
47. Conformal evolution of space-time solutions of Einstein's equations (with K.L. Duggal), *Communications in Applied Analysis* 11 (2007) 15-22.
48. Almost Hermitian manifolds admitting a holomorphically planar conformal vector field (with A. Ghosh), *Journal of Geometry* 84 (2005), 45-54.
49. Conformal Killing vector fields on space-time solutions of Einstein's equations and initial data (with K.L. Duggal), *Nonlinear Analysis: Theory, Methods & Applications* 63 (2005), e 447-454.
50. Conformal symmetries of Einstein's field equations and initial data, *Journal of Mathematical Physics* 46 (2005), 042502-(1-8).
51. Holomorphically planar conformal vector fields on almost Hermitian manifolds, *Contemporary Mathematics (American Mathematical Society)* 337 (2003), 145-154.
52. Contact hypersurfaces of a Kaehler manifold, *Journal of Geometry* 78 (2003), 156-167. 4
53. A class of conformally flat contact metric 3-manifolds (with F.Gouli-Andreou), *Results in Mathematics* 43 (2003), 114-120.
54. Characteristic surfaces in 3-dimensional Sasakian manifolds (Invited Paper), *International*

*Journal of Mathematical Sciences* 1 (2002), 117-119.

55. Comment on the book “Symmetries of spacetimes and Riemannian manifolds” by Duggal/ Sharma, and its review by M. Keyl, *General Relativity and Gravitation* 34 (2002), 1325-1326.
56. Totally umbilical CMC hypersurfaces of a conformally recurrent manifold (with M. Tarafdar), *Note di Matematica* 20 (2001), 89-92.
57. Intrinsic and extrinsic characterizations of contact metric manifolds, *Geometry, Analysis and Applications*, Ed. R.S. Pathak, World Scientific, Singapore, 2001, 119-127.
58. Conformally flat contact metric manifolds (with A. Ghosh and T. Koufogiorgos), *Journal of Geometry* 70(2001), 66-76.
59. On contact strongly pseudo-convex integrable CR manifolds (with A. Ghosh), *Journal of Geometry* 66 (1999), 116-122.
60. Addendum to: Curvature of contact manifolds, *Journal of Geometry* 65 (1999), 190-192.
61. Addendum to: Conformal motion of contact manifolds, *Illinois Journal of Mathematics* 42 (1998), 673-677.
62. Some results on contact metric manifolds (with A. Ghosh), *Annals of Global Analysis and Geometry* 15 (1997), 497-507.
63. Conformal motions of contact manifolds with characteristic vector field in the k-nullity distribution (with D.E. Blair), *Illinois Journal of Mathematics* 40 (1996), 552-563.
64. On the curvature of contact metric manifolds, *Journal of Geometry* 53 (1995), 179-190.
65. Notes on contact metric manifolds, *Ulam Quarterly* 3 (1995), 27 ff. 7 pp. (electronic).
66. Ricci curvature inheriting symmetries of semi-Riemannian manifolds (with K.L. Duggal), *Contemporary Mathematics (American Mathematical Society)* 170 (1994), 215-224.
67. Proper conformal symmetries of space-times with divergence-free Weyl conformal tensor, *Journal of Mathematical Physics* 34 (1993), 3582-3587.
68. Second order parallel tensors on contact manifolds II, *Comptes Rendus Mathematical Reports of the Academy of Science, Canada* 13 (1991), 259-264.
69. Locally symmetric and Ricci-symmetric contact metric manifolds (with T. Koufogiorgos), *Annals of Global Analysis and Geometry* 9 (1991), 177-181.

70. Proper special conformal Killing vectors and the quadratic theory of gravity, *Journal of Mathematical Physics* 32 (1991), 1854-1856.
71. Hypersurfaces in a conformally flat space with curvature collineation (with K. L. Duggal), *International Journal of Mathematics and Mathematical Sciences* 14 (1991), 595-604.
72. Exponential and trigonometric functions through functional equation, *International Journal of Mathematical Education in Science and Technology* 22 (1991), 150-152.
73. Generalization of Myers' theorem on contact manifolds (with D. E. Blair), *Illinois Journal of Mathematics* 34 (1990), 837-844.
74. Second order parallel tensors on contact manifolds, *Algebras, Groups and Geometries* 7 (1990), 145-152.
75. Conformal and curvature symmetries of contact metric manifolds, *Comptes Rendus Mathematical Reports of the Academy of Science, Canada* 12 (1990), 235-240.
76. A classification of 3-dimensional contact metric manifolds with  $Q\varphi = \varphi Q$  (with D. E. Blair and T. Koufogiorgos), *Kodai Mathematical Journal* 13 (1990), 391-401.
77. Three-dimensional locally symmetric contact metric manifolds (with D. E. Blair), *Bolletino Unione Matematica Italiana* (7) 4-A (1990), 385-390.
78. Second order parallel tensors in real and complex space-forms, *International Journal of Mathematics and Mathematical Sciences* 12 (1989), 787-790.
79. Conformal vector fields in symmetric and conformal symmetric spaces, *International Journal of Mathematics and Mathematical Sciences* 12 (1989), 85-88.
80. Proper conformal symmetries of conformal symmetric space-times, *Journal of Mathematical Physics* 29 (1988), 2421-2422.
81. Mixed foliate CR-submanifolds of indefinite complex space-forms (with K. L. Duggal), *Annali di Matematica Pura ed Applicata* 149 (1987), 103-111.
82. Totally umbilical CR-submanifolds of semi-Riemannian Kaehler manifolds (with K. L. Duggal), *International Journal of Mathematics and Mathematical Sciences* 10 (1987), 551-556.
83. Totally umbilical CR-submanifolds of locally conformal Kaehler manifolds (with K. L. Duggal), *Mathematical Chronicle* 16 (1987), 79-83.
84. Conformal collineations and anisotropic fluids in general relativity (with K. L. Duggal), *Journal of Mathematical Physics* 27 (1986), 2511-2513.
85. Lorentzian framed structures in general relativity (with K. L. Duggal), *General Relativity and Gravitation* 19 (1986), 71-77.

86. Semi-symmetric connections in a semi-Riemannian manifold (with K. L. Duggal), *Indian Journal of Pure and Applied Mathematics* 17 (1986), 1276-1282.
87. Characterization of an affine conformal vector field (with K. L. Duggal), *Comptes Rendus Mathematical Reports of the Academy of Science, Canada* 7 (1985), 201-205.
88. Certain characteristics of the curvature tensor of an affinely connected manifold, *Canadian Mathematical Bulletin* 26 (1983), 355-357.
89. On para-A-Einstein manifolds (with B. B. Sinha), *Publications de l'Institut Mathematique (N.S.)* 34 (1983), 211-215.
90. A relation between an affine Killing vector and the strain tensor of a pseudo-Riemannian manifold, *Comptes Rendus Mathematical Reports of the Academy of Science, Canada* 4 (1982), 305-307.
91. On Einstein-like P-Sasakian manifolds, *Matematicki Vesnik* 6 (19)(34) (1982), 171-184.
92. A quartic structure  $F^4 = I$  (with B. B. Sinha), *The Mathematics Student* 48 (1980), 153-160.
93. Hypersurfaces in an almost paracontact manifold (with B. B. Sinha), *Matematicki Vesnik* 4 (17)(32) (1980), 105-112.
94. Infinitesimal affine normal variation of hypersurfaces in an affinely cosymplectic manifold (with B. B. Sinha), *The Mathematics Student* 48 (1980), 166-172.
95. Infinitesimal variations of hypersurfaces of a Sasakian manifold (with B. B. Sinha), *Progress of Mathematics* 13 (1979), 23-30.
96. Infinitesimal variations of hypersurfaces of an almost product and almost decomposable manifold (with B. B. Sinha), *Indian Journal of Pure and Applied Mathematics* 10 (1979), 1009-1019.
97. On a structure  $f$  satisfying  $f^2 + \alpha f \lrcorner I = 0$  (with B. B. Sinha), *Indian Journal of Pure and Applied Mathematics* 9 (1978), 818-823.
98. On a special quadratic structure on differentiable manifolds (with B. B. Sinha), *Indian Journal of Pure and Applied Mathematics* 9 (1978), 811-817.



### C. Papers Presented at Conferences/Universities/Institutes

1. Constant scalar curvature gradient Ricci soliton carrying a closed conformal vector field, (joint with J. Siva Filho), Virtual special session “Recent developments in Differential Geometry” of the American Mathematical Society’s meeting, Rhode Island, Mar. 2021.
2. Recent progress on Ricci almost solitons, **Plenary talk** at the virtual conference on Differential Geometry, Dr. Harisingh Gour University, Saugor, India, June 2020.
3. (i) Lagrangian submanifolds of nearly Kaehler unit 6-sphere, and (ii) Bochner-Kaehler Bach flat manifolds, **Invited plenary talks** at the Workshop on Differential Geometry, Bangalore and Ramaiah Universities, India, July 2019.
4. Some results on Lagrangian submanifolds of nearly Kaehler unit 6-sphere, **Invited talk** at the special session “Geometry of Submanifolds, in honor of Bang-Yen Chen’s 75th birthday” of the *American Mathematical Society’s meeting*, University of Ann Arbor, Michigan, Oct. 2018.

5. Ricci solitons as contact Riemannian metrics, *A series of three invited talks* at CIMPA (Centre International de Mathematiques Pures et Appliquees)-INDIA research school on Geometric Flows, Jadavpur University, India, Dec. 2016.
6. Ricci solitons within the framework of contact geometry, *Keynote Address* at the National Conference on Geometry, Topology and Applications, Karnataka University, India, Aug. 2016.
7. Ricci solitons: Foundations and Prospects, *Plenary Invited talk* at the International Workshop on Differential Geometry, *Sri Sathya Sai Institute Of Higher Learning*, Prasanthinilayam, India, July, 2015.
8. Characterizations of almost contact Lagrangian submanifolds of nearly Kaehler unit 6-sphere, *Invited talk* at the special session "Geometry of Submanifolds" of the *American Mathematical Society's meeting*, San Francisco State University, California, Oct. 2014.
9. Ricci solitons as  $(k, \mu)$ -contact metrics, *Invited talk* at the Satellite Conference on Real and Complex Submanifolds, of *International Congress Of Mathematicians-2014*, and 18th International Conference on Differential Geometry, National Institute Of Mathematics, Daejeon, South Korea.
10. Dark energy, Dark Matter, and Einstein's theory of Gravitation, Physics Colloquium talk at *Sri Sathya Sai Institute Of Higher Learning*, July, 2014.
11. Ricci and Yamabe Solitons in Contact Geometry, *Plenary talk* at the Conference on Differential Geometry, *Bangalore University*, July 2013.
12. Infinite Tetration, Mathematics Colloquium talk at *Sri Sathya Institute Of Higher Learning*, July, 2013.
13. Contact Geometry and Ricci Solitons, *Invited* Colloquium talk at *Florida International University* (Department of Mathematics), March, 2013.
14. Ricci Solitons in Contact Geometry, A Heuristic Approach, *Invited talk* at a two-day national seminar on the occasion of the birth centenary of Late professor M.C. Chaki, *Kolkata* (India), Jul. 2012
15. Ricci Solitons on Riemannian and Lorentzian Manifolds, *Invited* Colloquium talk at *King Saud University*, Dec. 2011.
16. On a 1-parameter family of singular matrices, North-Eastern Sectional Meeting of the *Mathematical Association of America*, Connecticut College, Nov. 2011.
17. Can we divide a vector by another vector? Presented by student co-author Sheila Angelica at the North-Eastern Fall Meeting of the *Mathematical Association of America*, Connecticut College, Nov. 2011.

18. Differential equations in cosmology, *Invited talk* at the Symposium on Differential Equations, *Sri Sathya Sai Institute Of Higher Learning* (India), July 2011.
19. Synchronous space-times with pure trace extrinsic curvature slices, Lecture delivered at *Inter-University Centre for Astronomy and Astrophysics* (Pune, India), July 2011.
20. Our Universe: Dark energy and Dark matter, Colloquium Lecture at *Sri Sathya Sai Institute Of Higher Learning* (India), July 2011.
21. Non-trivial Ricci Solitons on 3-D Sasakian manifolds and their obstruction to compactness, *Invited talk* at the special session “Geometric and topological problems in curvature” of the *American Mathematical Society’s meeting*, College of Holy Cross (Massachusetts), April 2011.
22. Sasakian 3-metric as Ricci soliton represents the Heisenberg group, Lecture delivered at the *Satellite conference* at the Indian Institute Of Science, Bangalore, India, of the *International Congress of Mathematicians*, Aug. 12-15, 2010.

23. Weyl curvature and spatial isotropy of synchronous space-times, Lecture delivered at the conference “Geometric and Probabilistic aspects of General Relativity” at the *University of Strasbourg* (sponsored by *CNRS*, France) , June 10-12, 2010.
24. Space-times admitting a quadratic conformal Killing tensor, 13<sup>th</sup> Eastern Gravity Meeting, *North Carolina State University*, Raleigh, May 21-22, 2010.
25. AM-GM equality, Presented by co-author C. Barratt at the North-Eastern Sectional Fall Meeting of the *Mathematical Association of America*, Springfield, MA, Nov. 20-21, 2009.
26. Contact geometry and Ricci solitons, **Invited talk** at *Dartmouth Geometry and Topology seminar*, Dartmouth College, Nov. 2009.
27. Ricci solitons in contact geometry, **Invited talk** at the special session “Symplectic, contact and complex structures” of the *American Mathematical Society’s meeting*, Pennsylvania State University (University Park), Oct. 2009.
28. Arithmetic Mean–Geometric Mean Equality, Colloquium talk at the Department of Mathematics, *Sri Sathya Sai Institute Of Higher Learning*, July, 2009.
29. Solutions of Einstein’s equations with conformal symmetries and initial data, **Invited talk** at the 14<sup>th</sup> *Canadian conference on General Relativity and Relativistic Astrophysics*, South Alberta Institute Of Technology, Calgary, Canada, May 2009.
30. Means in  $n$ -dimensions: Exploring equalities of numbers through certain equations (joint with G. Brown, H. Biao and J. Wu). Presented by G. Brown at North Eastern Sectional meeting of *Mathematical Association Of America* , Bentley College, Nov. 2008.
31. Conformal geometry of contact metric manifolds, **Invited talk** at the special session “*Riemannian and Lorentzian Geometries*” of the *American Mathematical Society’s meeting*, Wesleyan University (Connecticut), Oct. 2008.
32. Weyl conformal tensor and conformal symmetries of generalized Robertson-Walker space-times, **Invited talk** at the *Raman Research Institute*, Bangalore, India, Aug. 2008.
33. Differential geometry and Cosmology, Colloquium talk at the Mathematics Department of *Sri Sathya Sai Institute Of Higher Learning* (India), July, 2008.
34. Evolution of solutions of Einstein’s equations out of a contact Riemannian metric, **Invited talk** presented by K.L. Duggal (co-author) at the 5<sup>th</sup> *World Congress of Nonlinear Analysts*, Orlando, Florida, July, 2008.
35. Conformal vector fields on space-time with an initial data, **Invited talk** presented by K.L. Duggal (co-author) at the special session “*Relativity and Gravitational Theory*” of the 3<sup>rd</sup> *International Conference of Applied Mathematics*, Plovdiv, Bulgaria, Aug. 2006.
36. A Contact conformal characterization of an odd dimensional unit sphere, **Invited talk** at the special session “*Geometry of Riemannian manifolds with additional structures*” of the *American Mathematical Society’s meeting*, Miami, April 2006.

37. Conformal symmetries of Einstein's field equations and geometric structure of the initial data, **Plenary Invited lecture** under the *Theoretical Physics Seminar Circuit* of the *S.N. Bose National Center for Basic Sciences*, Calcutta, India, Aug. 2004.
38. Conformal vector fields on spacetimes and Initial data, **Invited talk** presented by the co-author, K.L. Duggal at the special session "*Geometric analysis in Mathematical Physics*" of the *4<sup>th</sup> World Congress of Nonlinear Analysts*, Orlando, Florida, June 30-July 7, 2004.
39. Conformal vector fields on Kaehler manifolds and contact hypersurfaces, **Invited talk** at the special session "*Recent developments in Riemannian and Lorentzian geometries*" of *American Mathematical Society meeting* (Baltimore, Jan. 2003).
40. Solutions of Einstein's equations with conformal symmetries, Department Of Physics, *Yale University*, Mar. 2002.
41. Intrinsic and extrinsic characterizations of contact manifolds, **Invited talk** at *International conference on geometry, analysis and applications*, B.H.U., India, Aug. 2000.
42. Canonical contact hypersurfaces of Kaehler manifolds, 105<sup>th</sup> Annual meeting of *American Mathematical Society*, Washington, D.C., Jan. 2000.
43. Infinitesimal transformations of semi-Riemannian manifolds, **Invited talk** at the Department of Pure Mathematics, *University of Calcutta*, India, Aug. 1998.
44. Conformal symmetries of spatially compact spacetimes, *14th International conference on General Relativity and Gravitation at Florence*, Italy, Aug. 1995.
45. Geometry of Contact manifolds, **Invited talk** at the Department of Pure Mathematics, *University of Calcutta*, India, Aug. 1995.
46. Curvature of contact metric manifolds, Department of Mathematics, *University of Connecticut* (Storrs, March 1995).
47. 3+1 formalism on spacetimes and conformal symmetries, Department of Physics, *Yale University*, Feb. 1995.
48. Ricci curvature inheriting symmetry of semi-Riemannian spaces (with K.L. Duggal), **Invited talk** at a special session of the *Joint meeting of American and Canadian Mathematical Societies*, Vancouver, August 1993.
49. Proper conformal symmetries of spacetimes with divergence-free Weyl conformal tensor, **Invited talk** at a special session "*Differential Geometry*" of *American Mathematical Society* at San Antonio, Texas, January 1993.
50. Spacetimes with conformal symmetries, **Invited talk** at the Department of Physics, *University of Connecticut*, Storrs, November 1992.

51. Infinitesimal conformal transformation of Sasakian 3-manifolds, *6th Lehigh University Geometry and Topology Conference*, Bethlehem, Pennsylvania, 1991.
52. Curvature properties of contact Riemannian manifolds, *American Mathematical Society Summer Research Institute*, University of California, Los Angeles, 1990).
53. Matter-symmetric solutions of Einstein field equations with conformal symmetry, **Invited talk** at the *12th International Conference on General Relativity and Gravitation*, University of Colorado, Boulder, 1989.
54. Special conformal collineations in locally symmetric spaces, *93rd Annual Meeting of the American Mathematical Society*, San Antonio, 1987.
55. Applications of some CR-submanifolds to physical space-times, *92nd Annual Meeting of the American Mathematical Society*, New Orleans, 1986.
56. A characterization of an affine conformal vector field, *88th Summer Meeting of the American Mathematical Society*, Eugene, 1984.
57. A research program in general relativity, *65th Ontario Mathematics Meeting*, Queen's University, Canada, 1983.
58. On  $\eta$ -Einstein Sasakian manifolds, *Annual meeting of the Indian Mathematical Society*, Bangalore University, 1981.

#### **D. Editing/ Refereeing/ Reviewing/Advising**

Serving on the editorial boards of the following journals:

- (i) International Electronic Journal Of Geometry
- (ii) Investigations In Mathematical Sciences.

#### **Reviewed research papers for Mathematical Reviews, in the following journals:**

*Classical and Quantum Gravity* (2019)  
*Journal of Geometry and Physics*, *Mathematica Moravica*, *Annali Di Matematica Pura Ed Applicata* (2015),  
*Journal Of Mathematical physics*, *Proceedings of American Mathematical Society* (2013),  
*An. Univ. Oradea Fasc. Mat.* (2012), *Classical and Quantum Gravity* (2011)  
*Annals of Global Analysis and Geometry* (2010), *Modern Physics Letters A*,  
*Journal of Geometry and Physics*, *Il Nuovo Cimento* (2010)  
*Nuovo Cimento Soc. Ital. Fis. B*, *Advances in Studies Of Theoretical Physics* (2009)  
*Differential Geometry and Dynamical Systems*, *Physical Review D*,  
*Politehn. Univ. Bucharest Sci. Bull. Ser. A Appl. Math. Phys.*,

*General Relativity and Gravitation, Classical and Quantum Gravity* (2008),  
*Foundations of Physics, International J. Contemporary Mathematical Sciences,*  
*Foundations of Physics* (2007), *General Relativity and Gravitation,*  
*Contemporary Mathematics, General Relativity and Gravitation,*  
*General Relativity and Gravitation, General Relativity and Gravitation* (2004),  
*Bulletin of Korean Math. Society, International Journal of Engineering Science* (2003)  
*International Journal Of Modern Physics* (2002, 2002),  
*Rend. Sem. Mat. Messina Ser. II , Classical and Quantum Gravity* (2000),  
*Proceedings of the 2<sup>nd</sup> World Congress of Nonlinear Analysts* (1998),  
*Soviet Physics Journal, Classical and Quantum Gravity,*  
*Indian Journal of Mathematics, General Relativity and Gravitation,*  
*General Relativity and Gravitation, Journal of Mathematical Physics* (1995, 1995),  
*Physics Letters A* (1994, 1994), *Classical and Quantum Gravity* (1994),  
*Archivum Mathematicum, Annales Stint. Univ. Al. I. Cuza Iasi Sect. I a Mat.* (1994)  
*Journal of Mathematical Physics* (1993).

**Refereed research papers for the following journals:**

*International Electronic Journal of Geometry* (Oct. 2020)  
*Journal of Mathematical Physics, Analysis and Geometry* (Apr. 2020)  
*Afrika Matematika* (Feb. 2020)  
*Tamkang Journal Of Mathematics* (Feb 2019)  
*Journal of Geometry* (Sept 2018)  
*Results in Mathematics* (March 2018)  
*Acta et Commentationes Universitatis Tartuensis de Mathematica* (Aug. 2017)  
*Bulletin of Belgian Mathematical Society* (2016)  
*Publicationes Mathematicae Debrecen* (2015)  
*Annales Polonici Mathematici* (2014)  
*International Scholarly Research Notices, Geometry* (2014)  
*Indagationes Mathematicae* (2013)  
*Geometry* (2013)  
*Arab Journal of Mathematical Sciences* (2012)  
*Journal Of Geometry* (2012)  
*Tbilisi Mathematical Journal* (2012)  
*Arab Journal Of Mathematical Sciences* (2012)  
*Chaos, Solitons and Fractals* (2011)  
*Bulletin of Mathematical Analysis and Applications* (2011)  
*Bulletin of Mathematical Analysis and Applications* (2011)  
*Archiv der Mathematik* (2010)  
*Balkan Journal of Geometry and Applications* (2010)  
*Bulletin of the Malaysian Mathematical Society* ( 2009)  
*International Electronic Journal of Geometry* (2008)  
*Balkan Journal of Geometry* (2008)  
*International Electronic Journal Of Geometry* (2008)  
*Kyungpuk Mathematical Journal* (2008)  
*Journal of Geometry* (2008)  
*Symmetry, Integrability and Geometry, Methods* (2007),  
*Indian Journal Of Mathematics* (2007),  
*Publicationes Mathematicae Debrecen* (2007),

*Tsukuba Journal Of Mathematics* (2005),  
*Bulletin of the Malaysian Mathematical Society* (2004),  
*Contemporary Mathematics* (2002),  
*Note Di Matematica* (2002).  
*Journal Of Geometry* (2000),  
*International Journal Of Mathematics and Mathematical Sciences* (1994),  
*Indian Journal Of Mathematics* (1993),  
*Indian Journal Of Mathematics* (1993),  
*Note Di Matematica* (1993),  
*International Journal Of Mathematics and Mathematical Sciences* (1990),  
*Note Di Matematica* (1990),  
*International Journal Of Mathematics and Mathematical Sciences* (1990),

**Examined** Five foreign (outside USA) Ph.D. dissertations.

**Advised** Dr. A. Ghosh on his Ph.D. dissertation (University of Calcutta, India).

**Advised** D. Singhal (a U.N.H. Mathematics Major) on preparing and publishing the paper “The tangent function through a functional equation” in *International Journal of Mathematical Education in Science and Technology*, Vol. 32, May 2001, pp. 439-440.

**Advised** a student at Sri Sathya Sai University (India) on the Master’s dissertation, Aug.2007-Mar. 2008 .

**Advised** two senior U.N.H. undergraduate students majoring in mathematics on a project that resulted in a presentation at a *Mathematical Association Of America* meeting in 2008 and also as the following publication:

“Reviewing A.M.-G.M. equality by waiving positivity (with G. Brown, H. Biao and J. Wu), *International Journal of Pure and Applied Mathematics* 60 (2010), 229-322”.

**Advised** four more U.N.H. undergraduate students majoring in mathematics on projects that resulted in presentations at *Mathematical Association of America* meetings in 2011 and 2013.

**Advised** two undergraduate students (majoring in mathematics), Chris Pariso and Michelle Duda, on a project resulted in the following publication (co-authored by myself)

“Remarks on a one-parameter family of singular matrices (with C. Pariso and M. Duda), *International Journal of Mathematical Education in Science and Technology* 46 (2014), 156-158 <http://dx.doi.org/10.1080/0020739x.2014.936980>”.

*Above activities show my keen interest in pursuing experiential education (one of the important missions of UNH).*

#### **ORGANIZATION/ADVISORY MEMBERSHIP OF CONFERENCES/WORSHOPS:**



- *Member of the Scientific Committee* of CIMPA (Centre International de Mathematiques Pures et Appliquees)-INDIA research school on Geometric Flows, Jadavpur University (Dec.1-12, 2016).
- *International Chairman* of the International Workshop on Differential Geometry, Foundations and Prospects, Sri Sathya Sai Institute of Higher Learning, Prasanthinilayam, India, July 10-11, 2015. Also, chaired the panel discussion.
- *Member of the Program Committee* of the 2013 International Conference on Mathematics and Its Applications, Yogyakarta, Indonesia, Aug. 18-21, 2013.
- *Member of the Advisory Board* of the International Conference on Differential Geometry Functional Analysis, and Applications, J.M.I., New Delhi, India, Sept. 8-10, 2012.
- *Member of the Scientific Committee* of the International Conference of Mathematical Sciences, Istanbul, Turkey, Aug. 04-10, 2009.
- *Co-organized* (with Philippe Rukimbira of Florida International University) *a special session* “Riemannian and Lorentzian geometries” of the Eastern Sectional meeting of American Mathematical Society, Wesleyan University (Connecticut), Oct. 2008.
- *Co-organized* (with K.L. Duggal) *a special session* “Recent advances in Riemannian and Lorentzian geometries” at the annual meeting of American Mathematical Society, Baltimore, Jan., 2003.
- *Chaired a session* on Geometry at International Conference on Geometry, Analysis and Applications, B.H.U. (India), Aug. 2000.
- *Chaired a special session* on Differential Geometry of the annual meeting of American Mathematical Society, San Antonio, Texas, Jan., 1993.
- *Chaired a session* of the American Mathematical Society Meeting at Michigan State University (East Lansing, Michigan) , March 1988.

**F. MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS:**

- *International Society of General Relativity and Gravitation (Switzerland).*
- *American Mathematical Society.*