

Curriculum Vitae of Mehdi Nadjafikhah

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Born: 13 May 1970 (1349/2/23), Tehran, Iran.

Education:

- **Bs.C.**, 1992, Iran University of Science and Technology, Mathematics: Pure Mathematics.
- **Ms.C.**, 1994, Iran University of Science and Technology, Pure Mathematics: Geometry and Topology.
Title of Thesis : Theory of G -structures and Equivalence Problems
Thesis Advisor: Prof. Dr. E. Esrafilian
- **Ph.D.**, 1998, Iran University of Science and Technology, Pure Mathematics: Differential Geometry.
Title of Thesis : Theory of Finite Order G -structures
Thesis Advisor: Prof. Dr. E. Esrafilian

Professional Experience:

- **Assistant Professor of Mathematics** : Department of Pure Mathematics, School of Mathematics, Iran University of Science and Technology, I.R.Iran, 1998-2008.
- **Assistant Professor of Mathematics** : Department of Pure Mathematics, Faculty of Sciences, Islamic Azad University, Varamin-Pishva Unit, I.R.Iran, 2004-2008.
- **Head of Department of Pure Mathematics** : School of Mathematics, Iran University of Science and Technology, I.R.Iran, 2000-2004.
- **Associate Professor of Mathematics** : Department of Pure Mathematics, School of Mathematics, Iran University of Science and Technology, I.R.Iran, 2008-.
- **Associate Professor of Mathematics** : Department of Mathematics, Faculty of Science, Islamic Azad University, Varamin-Pishva Unit, 2008-.
- **Research Administrator** : School of Mathematics, Iran University of Science and Technology, I.R.Iran, 2008-.

Teaching Duties:

- **For Ph.D. students:** Exterior differential systems, Equivalence invariant and symmetry, Applications of Lie groups to differential equations.

- **For graduate students:** Differentiable manifolds 1, Differentiable manifolds 2, Lie groups and Lie algebras 1, Lie groups and Lie algebras 2, Differential topology 1, Differential topology 2, Dynamical systems 1.
- **For undergraduate students:** Foundations of mathematics, Calculus 1, Calculus 2, General mathematics A, General mathematics AA, General mathematics AAA, Ordinary differential equations, Engineering mathematics, Advanced engineering mathematics, Foundations of geometry, Mathematical analysis 1, Mathematical analysis 2, Mathematical analysis 3, Basic algebraic topology, Local differential geometry, Global differential geometry, General topology, Elementary Lie group analysis.

Ph.D. Students:

- [1] **A.R. Forough**, *General Theory of the Moving Coframes*, IUST, 2003-2007, e-mail: a_forough@iust.ac.ir
- [2] **A. Mahdipour-Sh.**, *Cartan's Method of Equivalence, Symmetry and Exterior Differential Systems*, IUST, 2005-2009, e-mail: mahdi_psh@mathdep.iust.ac.ir
- [3] **S.R. Hejazi**, IUST, 2007-, e-mail: reza_hejazi@mathdept.iust.ac.ir
- [4] **R. Bakhshandeh-Ch.**, IUST, 2008-, e-mail: r_bakhshandeh@iust.ac.ir
- [5] **N. Yaftian**, IUST, 2008-, e-mail: n_yaftian@yahoo.com
- [6] **F. Ahangari**, IUST, 2009-, e-mail: fa.ahangari@aut.ac.ir

Ms.C. Students:

- [1] **N. Moshtaghy**, *Reductive approach of the Cartan's moving method and its applications in classical invariant theory*, IUST, 2002.
- [2] **M. Khalili**, *General theory of the moving frames*, IUST, 2002.
- [3] **A. Shamloo**, *Energy preserving affine connections*, IUST, 2003.
- [4] **H. Nadjafi-Alishah**, *Affine connection control systems*, IUST, 2003. e-mail: h_najafi@iust.ac.ir
- [5] **H.R. Salimi-Mo.**, *Differential geometry of Cartan connections*, IUST, 2004. e-mail: salimi_m@iust.ac.ir
- [6] **E. Noroozi**, *Relation between affine connections and constrains*, IUST, 2005.
- [7] **A. Mahdipour-Sh.**, *Projective connections associated with second order ODE's*, IUST, 2005. e-mail: mahdi_psh@mathdep.iust.ac.ir
- [8] **H. Mahmoodi**, *Joint invariant signatures*, IUST, 2004.
- [9] **R. Azizi**, *Gallilian space times*, IUST, 2006.
- [10] **S.M. Mousavi**, *Leibnizian, Galilean and Newtonian Structures of Space Time*, IUST, 2006. e-mail: mahdi_mousavi@mathdep.iust.ac.ir
- [11] **A. Rahmani**, *Affine connection control systems*, IUST, 2006.
- [12] **N. Mohammad-jafari**, *Over-determined equivalence problems and its applications in control*, ATSU, 2006. e-mail: na_mohjaf@yahoo.com
- [13] **K. Shakeri**, *Cartan's equivalence method*, ATSU, 2006.
- [14] **M.H. Tavasoli**, *Geometry and nonlinear connections*, ATSU, 2006.
- [15] **K. Farhadzadeh**, *Exterior differential systems*, ATSU, 2007.
- [16] **S.R. Hejazi**, *Theory of differential invariants*, IUST, 2007. e-mail: Reza_hejazi@mathdep.iust.ac.ir

- [17] **N. Mehdi**, *Differential invariant signature and flow in computer vision*, IUST, 2007. e-mail: Nemati-math@yahoo.com
- [18] **P. Kabinejad**, *Differential invariant of surfaces*, IUST, 2008. e-mail: parastoo.kabinejad@yahoo.com
- [19] **S. Mehdipour**, *Geometric foundations of numerical algorithms and symmetry*, IUST, 2008.
- [20] **T. Reza-Khoshdani**, *Invariant submanifold flows*, IUST, 2008.
- [21] **R. Bakhshandeh-Ch.**, *Generating differential invariants*, IUST, 2008. e-mail: r_bakhshandeh@iust.ac.ir
- [22] **M. Bikdeloo**, *The geometry of a pair of second order ODEs and Euclidean spaces*, IUST, 2009. e-mail: copiden@yahoo.com
- [23] **N. Nasirzadeh**, *Symmetries of differential equations via Cartan's method of equivalence*, IUST, 2009. e-mail: nahal_N5@yahoo.com
- [24] **S. Nazari**, *Maurer-Cartan Forms and the Structure of Lie Pseudo-groups*, IUST, 2009. e-mail: copiden@yahoo.com
- [25] **S. Dodangeh**, *Hubert - Differential invariants of a Lie group action*, IUST, 2010. e-mail: saeed136541@yahoo.com
- [26] **E. Oftadeh**, *Symmetries of differential equations and Cartan's equivalence method*, ATSU, 2010. e-mail: elahehoftadeh@gmail.com
- [27] **M. Abdolsamadi**, *Structure of symmetry groups via Cartan's method: Survey of four approach*, ATSU, 2010. e-mail: maryam.abdolsamadi@yahoo.com
- [28] **P. Ahmadi**, *An introduction to symmetry methods in the solution of differential equations that occur in chemistry and chemical biology*, ATSU, 2010. e-mail: parvanehahmadi63@gmail.com

Research Interests:

My research interests revolve around the applications of symmetry and Lie groups to differential equations.

Projects:

- [1] *Cooling: A package for material engineering*, Technical report, Farda Industrial Company, 1993.
- [2] *Finite order geometric structures*, Technical report, Iran University of Science and Technology, 1995. (with **E. Esrafilian**)
- [3] *Teaching calculus I by Maple*, Technical report, Iran University of Science and Technology, 2000.
- [4] *Calculation methods in equivalence problem of second order equations*, Technical report, Iran University of Science and Technology, 2001.
- [5] *Classification of 3rd order curves up to Euclidean transformations*, Technical report, Iran University of Science and Technology, 2004.
- [6] *Calculation in Cartan-Kohler theory*, Technical report, Iran University of Science and Technology, 2005.
- [7] *Exterior differential systems and its applications in geometry*, Technical report, Iran University of Science and Technology, 2006.
- [8] *Cartan's equivalence problem and its applications in differential equations*, Technical report, Iran University of Science and Technology, 2006. (with **R. Aghayan**, **A.R. Forough** and **A. Mahdipour-Sh.**)

- [9] *Solution of equivalence problem and P.J.Olver*, Technical report, Iran University of Science and Technology, 2007.
- [10] *Classification of solutions of PDEs by Lie algebras*, Technical report, Iran University of Science and Technology, 2008.
- [11] *Lie groups and Lie algebras and their applications in symmetries of DEs*, Technical report, Iran University of Science and Technology, 2009.

Books:

- [1] *Simple Geometry*, Madreseh Pub. Co., First edition, 1997, Persian.
- [2] *Preparing for exams: Calculus 1*, Bahman Borna Pub. Co., First edition, 2000, Persian. (with **A. Rajabi-A.**) ISBN: 964-92802-2-7
- [3] *Preparing for exams: Numerical Computations*, Bahman Borna Pub. Co., 2nd edition, 2000, Persian. (with **U. Ebrahimdoost-K.** and **Ali Rajabi-A.**) ISBN: 964-92802-5-1
- [4] *Simple differential geometry*, Sahele Andisheye Tehran Pub. Co., 2nd edition, 2002, Persian. ISBN: 964-94471-5-6
- [5] *Preparing for exams: Calculus 2*, Sahele Andisheye Tehran Pub. Co., 2nd edition, 2003, Persian. ISBN: 964-94471-1-3
- [6] *Preparing for exams: Engeneering Mathematics*, Sahele Andisheye Tehran Pub. Co., 2nd edition, 2004, Persian. (with **M. Karami** and **A. Rajabi-A.**) ISBN: 964-94471-9-9
- [7] *Calculus 1*, Sahele Andisheye Tehran, First edition, 2007, Persian. ISBN: 964-96823-7-6
- [8] *Calculus 2*, Sahele Andisheye Tehran Pub. Co., 3rd edition, 2007, Persian. ISBN: 964-96823-8-4
- [9] *Final term exams of Calculus 1*, Sahele Andisheye Tehran Pub. Co., 1nd edition, 2009, Persian. ISBN: 978-600-5117-20-2
- [10] *Final term exams of Calculus 2*, Sahele Andisheye Tehran Pub. Co., 1nd edition, 2009, Persian.
- [11] *Basic Algebraic Topology*, Sahele Andisheye Tehran Pub. Co., 1nd edition, 2009, A persian translation of "Z. Kasniowski, A First Course in Algebraic topology, Cambridge University Press, 1980"). ISBN : 987-964-96823-5-X
- [12] *Calculus on Manifolds*, Sahele Andisheye Tehran Pub. Co., 1nd edition, 2009, A persian translation of "M. Spivak, Calculus on Manifolds, Publish or Perish, 1965". ISBN : 987-964-96823-4-1
- [13] *Elementary Ordinary Differential Equations*, Sahele Andisheye Tehran Pub. Co., 1nd edition, 2009, Persian. (with **A. Golbabaee**) ISBN : 987-600-5117-21-9

Lecture Notes:

- [1] Lectures in Geometry, Translation of *M.M. Postnikov, Lectures in Geometry, Semester 1: Analytic Geometry*, Mir Pub. Co., 1976., 1368.
- [2] Foundations of Differentiable Manifolds and Lie Groups, Translation of *F.W. Warner, Foundations of Differentiable Manifolds and Lie Groups, Graduate Texts in Mathematics, Springer, edition 1, 1983.*, 1370.
- [3] Basic algebraic topology, Translation of *C. Kosniowski, A First Course in Algebraic Topology, New York, NY, Cambridge University Press, 1980*, 1375.
- [4] Mathematical Analysis III, Translation of *M. Spivak, Calculus on Manifolds.*, 1375.

- [5] Transitive Lie Pseudogroups, Translation of *C. Albert and P. Molino, Pseudogroupes des Lie transitifs: I. structures principales*, Herman Pub. Co., 1984., 1376.
- [6] Differential Topology, Translation of *V. Guillemin and A. Pollack, Differential Topology* Englewood Cliffs, NJ, Prentice Hall, 1974., 1376.
- [7] Differential Topology 1, Translation of *Th. Brocker and K. Janich, Introduction to Differential Topology*, Cambridge University Press, 1982., 1379.
- [8] Calculus I, 1380.
- [9] Calculus II, 1380.
- [10] Foundations of Geometry, Translation of *R.S. Millman and G.D. Parker, A Metric Approach with Models*, New York, NY, Springer-Verlag, 1981, 1991. Second Edition., 1381.
- [11] Lie Groups and Compact Groups, Translation of *J.F. Price, N.J. Hitchin, Lie Groups and Compact Groups*, London Mathematical Society Lecture Note Series, Cambridge University Press, 1977., 1381.
- [12] Calculus III, 1381.
- [13] Contemporary Differential Geometry, Vol. 1, Translation of *M. Spivak, A Comprehensive Introduction to Differential Geometry*, Boston, MA, Publish or Perish, 1970-79. Second Edition, Vol 1., 1384.
- [14] Contemporary Differential Geometry, Vol. 2, Translation of *M. Spivak, A Comprehensive Introduction to Differential Geometry*, Boston, MA, Publish or Perish, 1970-79. Second Edition, Vol 2., 1384.
- [15] Contemporary Differential Geometry, Vol. 3, Translation of *M. Spivak, A Comprehensive Introduction to Differential Geometry*, Boston, MA, Publish or Perish, 1970-79. Second Edition, Vol 3., 1384.
- [16] Introduction to Lie Groups and Transformation Groups, Translation of *Ph. Tondeur, Introduction to Lie Groups and Transformation Groups*, Springer Verlag, 1969, 1386.

Published Papers:

- [1] *Classification the integral curves of homogeneous systems of degree two*, Accepted by Mathematical Sciences, 2010. (with **M. Mirafzal**)
- [2] *A symmetry classification for a class of $(2 + 1)$ -nonlinear wave equation*, Nonlinear analysis: Theory and applications, Volume 71, Issue 11, 1 December 2009, Pages 5164-5169. (with **R. Bakhshandeh-Ch.** and **A. Mahdipour-Sh.**) (link-1), (link-2)
- [3] *Classification of similarity solutions for inviscid Burgers' equation*, Adv. appl. Clifford alg., DOI 10.1007/s00006-008-0145-0, 2008. (link)
- [4] *Fuzzy differential invariants (FDI)*, Chaos, Solitons and Fractals, No. 42, pp. 167-1683, 2009. (with **R. Bakhshandeh-Ch.**) (link)
- [5] *Fuzzy Lie Groups*, Mathematical Sciences, Vol. 2, No. 2 (2008) 193-206. (with **R. Bakhshandeh-Ch.**) (link)
- [6] *Galilean geometry of motions*, Applied Sciences, Vol.11, pp. 91-105, 2009. (with **A.R. Forough**) (link-1), (link-2)
- [7] *Generating $SL(2)$ - differential invariants by Hilbert's operators*, Mathematical Sciences, Vol. 3, No. 1, 2009, pp. 17-24. (with **P. Kabinejad**) (link)
- [8] *Lie symmetries and solutions of KdV equation*, International Mathematical Forum, 4, 2009, no. 4, 165 - 176. (with **S.R. Hejazi**) (link)
- [9] *Lie symmetries of inviscid Burger's equation*, Adv. appl. Clifford alg. 19 (2009), 101112, DOI 10.1007/s00006-008-0127-2. (link)

- [10] *Symmetry analysis for a new form of the vortex mode equation*, Differential Geometry - Dynamical Systems, Vol.11, 2009, pp. 144-154. (with **A. Mahdipour-Sh.**) (link-1), (link-2)
- [11] *Symmetry analysis of cylindrical Laplace equation*, Balkan Journal of Geometry and Its Applications, Vol. 14, No. 2, 2009, pp. 63-74. (with **S.R. Hejazi**) (link)
- [12] *Symmetry group classification for general Burger's equation*, Accepted by Communications in Nonlinear Science and Numerical Simulations, 2009, DOI:10.1016/j.cnsns.2009.09.031. (with **R. Bakhshandeh-Ch.**) (link-1)
- [13] *The special linear representations of compact Lie groups*, Accepted by Mathematical Sciences, 2009. (with **R. Bakhshandeh-Ch.**) (link)
- [14] *Affine classification of n -curves*, Balkan Journal of Geometry and Its Applications, 13(2): pp. 66-73, 2008. arXiv :0710.2662. (with **A. Mahdipour-Sh.**) (link)
- [15] *First integrals of a special system of ODEs*, International Journal of Engineering, 2008. (with **S.R. Hejazi**) (link)
- [16] *Self equivalence 3rd order odes by time-fixed transformations*, Applied Science, 10: 176-183, 2008. (with **A.R. Forough**) (link-1), (link-2)
- [17] *Generalized classical time-space*, Mathematical Sciences, Vol. 2, No. 4 (2008) 327-334. (with **S.M. Mousavi**) (link-1), (link-2)
- [18] *Differential invariants of $SL(2)$ and $SL(3)$ -group actions on \mathbb{R}^2* , Mathematical Sciences, 1(3): 75-84, 2007. (with **S.R. Hejazi**) (link-1), (link-2)
- [19] *Time-fixed geometry of 2nd order ODEs*, IUST International Journal of Engineering Science, 18(1): 13-18, 2007. (with **A.R. Forough**) (link)
- [20] *Classification of cubics up to affine transformations*, Differential geometry & Dynamical Systems, 8(1): 184-195, 2006. (with **A.R. Forough**) (link-1), (link-2)
- [21] *The Lie algebra of smooth sections of a T -bundle*, IUST International Journal of Engineering Science, 17(3-4): 81-85, 2006. (with **H.R. Salimi-Mo.**) (link)
- [22] *T -bundle: A generalization of tangent bundle*, IUST International Journal of Engineering Science, 16(4): 39-45, 2005. (with **H.R. Salimi-Mo.**) (link)
- [23] *On the classification of certain curves*, Differential geometry & Dynamical Systems, 6: 14-22, 2004. (link)
- [24] *Affine differential invariants for planar curves*, Balkan Journal of geometry and its applications, 7(1): 69-78, 2002. (link)
- [25] *A representation of the prolongations of a G -structure*, Journal of Mathematics, 30: 109-123, 1997. Punjab University. (with **E. Esrafilian**) link
- [26] *The tangent bundle of higher order*, In Second World Congress of Nonlinear Analysts, volume 30, 8, pages 5003-5007, 1997. (with **E. Esrafilian**) (link)
- [27] *Do not search the finite rings in far away*, Roshd, Magazine of Mathematical Education, 33: 13-25, 1992, Persian.
- [28] *$r/2$ -circles and $r/2$ -spheres*, Roshd, Magazine of Mathematical Education, 27: 35-41, 1990, Persian.

Paper in Conferences:

- [1] *Correspondence between G -parameter Lie groups of local diffeomorphisms and \mathfrak{g} -regular k -vector Fields*, In 31st Iranian Mathematics Conference, pages 38-49, 2000. (with **E. Esrafilian**) (link)
- [2] *E^k -functor, a new geometric object which is a generalization of the ordinary tangent object*, In 31st Iranian Mathematics Conference, pages 56-67, 2000. (with **E. Esrafilian**) (link)
- [3] *Computer aided Lie theory of differential equations*, In 2nd International Conference of Applied Mathematics, pages 25-27, 2000.
- [4] *Geometry of differential equations*, In 2nd Joint Seminar on Applied Mathematics, 2000.
- [5] *Decomposition of higher order geometric structures*, In First Seminar of Geometry and Topology, pages 131-139, 2001.
- [6] *A new solution for the ane equivalence problem*, In 2nd Joint Seminar on Applied Mathematics, 2003.
- [7] *Classification of curves $y^3 = c_3x^3 + c_2x^2 + c_1x + c_0$ up to projective transformations*, In 34st Iranian Mathematics Conference, 2003, Persian.
- [8] *Classification of homogeneous fourth order equations with real coefficients up to affine transformations*, In 4th Seminar on Mathematical Analysis and its Applications, pages 134-137, 2004.
- [9] *Galilean space-times*, In 3 st Seminar of Geometry and Topology, page 18, 2003, Tabriz University, Persian. (with **A.R. Forough**)
- [10] *T -bundle*, In 3st Seminar of Geometry and Topology, page 19, 2003. Tabriz University, Persian. (with **H.R. Salimi-Mo.**)
- [11] *Finsler vector bundles and metrizable connections*, In 36st Iranian Mathematics Conference, pages 52-54, 2005. (with **A. Mahdipour-Sh.**)
- [12] *Generalized classical time-space*, In 4st Seminar of Geometry and Topology, page 13, 2007. (with **S.M. Mousavi**)
- [13] *Isometric group of Finsler spaces*, In 38st Iranian Mathematics Conference, pages 45-47, 2005. (with **A. Mahdipour-Sh.** and **H.R. Salimi-Mo.**)
- [14] *The exterior differential system*, In 38st Iranian Mathematics Conference, page 12, 2006. (with **R. Aghayan**)
- [15] *Cartan equivalence method for 3rd order odes up to time-fixed transformations*, In 37st Iranian Mathematics Conference, pages 63-65, 2006. (with **A.R. Forough**)
- [16] *Cartan construction for finite dimensional Lie pseudo-groups*, In 4st Seminar of Geometry and Topology, page 12, 2006. (with **A. Mahdipour-Sh.**)
- [17] *Equivalence 2nd order odes by time-fixed transformations*, In 4st Seminar of Geometry and Topology, page 14, 2006. (with **A.R. Forough**)
- [18] *Exterior differential systems with symmetry*, In 38st Iranian Mathematics Conference, page 13, 2006. (with **R. Aghayan**)
- [19] *Geometrical foundations of numerical algorithms and symmetry*, In 38st Iranian Mathematics Conference, page 180, 2006. (with **Sara Mehdipour**)
- [20] *Equivalence of surfaces*, The 1st national conference of Mathematics and its Applications, page 89, 2008. (with **S.A. Shirafkan**)
- [21] *On Cartan's method of moving frames*, submitted by In 39th Iranian Mathematical Conference, Shahid Bahonar University, Kerman, 491-494, 2008. (with **A. Mahdipour-Sh.**)

- [22] *Solution of nonlinear ODEs by first integrals*, In 8th Seminar on Differential Equations and Dynamical Systems, Isfahan, pp. 29-32, 2008. (with **S.R. Hejazi**)
- [23] *Point and contact symmetry for a non-linear differential equation*, In 5th seminar on geometry and topology, 12-14 May 2009, University of Kurdistan, Sanandaj, Iran. (with **A. Mahdipour-Sh.**)
- [24] *Classification of Lie symmetries for general Burger's equation*, 40st Iranian Mathematics Conference, 2009. (link) (with **R. Bakhshandeh-Ch.**)

Recent preprints:

- [1] *Calculation of differential invariants of $SL(2)$ and $SL(3)$ -group action*, Persian, 2008. (with **S.R. Hejazi**)
- [2] *Affine Geometry of space curves*, Submitted by Mathematical Sciences, 2008. (with **A. Mahdipour-Sh.** and **R. Aghayan**) (link)
- [3] *Galilean classification of spacetime curves*, Submitted by Com. Cont. Math., 2008. (with **A. Mahdipour-Sh.**) (link)
- [4] *Group analysis of three dimensional Euler equations of gas dynamics*, Submitted Balkan Journal of Geometry and Its Applications, 16 pages, 2009. (link)
- [5] *Exact solution of generalized inviscid Burgers' equation*, 4 pages, 2008. (link)
- [6] *Geometry of Distributions and F -Gordon equation*, Submitted by Mathematical Sciences, 10 pages, 2008. (with **R. Aghayan**) (link)
- [7] *Symmetry group of surface PDE*, Submitted by Advances in Mathematics, 2009. (with **P. Kabinejad**)
- [8] *Symmetries of 2nd and 3rd order homogeneous ODEs*, Submitted by The Bulletin of the Venezuela Mathematical Society, 2008. (with **S.R. Hejazi**) (link)
- [9] *Symmetry of quadratic homogeneous differential systems*, Submitted by Acta Mathematica Scientia, 2009. (with **A. Mahdipour-Sh.**) (link)
- [10] *Classification of n th order linear ODEs up to projective transformations*, 2009. (Persian) (with **S.R. Hejazi**)
- [11] *Symmetry analysis of cylindrical Helmholtz equation*, 2008. (with **A. Mahdipour-Sh.**) (link)
- [12] *Lie algebra structure of the symmetries of sourceless heat equations*, Submitted by Iranian Journal of Science and Technology, Shiraz, 2008. (with **S.R. Hejazi**)
- [13] *Lie group analysis of Poisson's equation and optimal system of subalgebras for Lie algebra of 3-dimensional rigid motions*, Submitted by Nonlinear analysis: Theory and applications, 2009. (link)
- [14] *Group classification and projective analysis of the nonlinear fin equation*, Submitted by Nonlinear analysis: Theory and applications, 2009. (with **A. Mahdipour-Sh.**) (link)
- [15] *Differential forms for finding symmetries of differential equations*, Submitted by 5th Seminar on Geometry and Topology 12-14 May 2009, University of Kurdistan, Sanandaj, Iran, 2009. (with **S.R. Hejazi**)
- [16] *Group analysis of Born-Infeld equation*, Submitted by Journal of Mathematical Analysis and Applications, 6 pages, 2009. (with **S.R. Hejazi**)
- [17] *Preliminary group classification of a class of 2D nonlinear heat equations*, Submitted by Journal of Nonlinear Analysis: Real World Applications, 2009. (with **R. Bakhshandeh-Ch.**) (link)
- [18] *On the properties of invariants of forms*, Submitted by DG-DS, 2009. (with **P. Kabinejad**) (link)

- [19] *Symmetry Analysis of Telegraph Equation*, Submitted by Asian-European Journal of Mathematics, 6 pages, 2009. (with **S.R. Hejazi**)
- [20] *Group classification of steady two-dimensional boundary-layer stagnation-point flow equations*, Submitted by Nonlinear analysis: Theory and applications, 6 pages, 2009. (with **S.R. Hejazi**)
- [21] *Symmetry classification of Newtonian incompressible fluid's equations flow in turbulent boundary layers*, Submitted by Nonlinear analysis: Theory and applications, 11 pages, 2009. (with **S.R. Hejazi**)
- [22] *Structure of symmetry groups via Maurer-Cartan's forms*, Submitted to The 1st Regional Conference on Mathematics and its Applications in Engineering Sciences, 24 February 2010. (Persian) (with **M. Abdolsamadi**)
- [23] *Application of Cartan's equivalence method in symmetries of differential equations*, Submitted to The 1st Regional Conference on Mathematics and its Applications in Engineering Sciences, 24 February 2010. (Persian) (with **E. Oftadeh**)
- [24] *Web geometry of a system of n first order autonomous ordinary differential equations*, Submitted by Advances in Mathematics, 2010.
- [25] *Symmetry method in solving differential equations in chemistry and biochemistry*, Submitted to The 1st Regional Conference on Mathematics and its Applications in Engineering Sciences, 24 February 2010. (Persian) (with **P. Ahmadi**)
- [26] *Application of Systems of Second Order Differential Equations in Characterization of Totally Geodesic Foliations*, Submitted to The 4th Applied Mathematics Conference, 1388, Zahedan, Iran, March 10-12, 2010. (Persian) (with **F. Ahangari**)