

## Personal Information

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## Academic Qualification

**BS:** Physics Isfahan University of Technology, 1995)

**MSc:** Physics ( Sh.Chamran University,1999 )

**M.Sc. Thesis Title:** Investigation on the influence of lead and the annealing time on the properties of BSCCO

**PhD:** Physics ( Shiraz University,2005 )

**Ph.D. Thesis Title:** Calculation of the energy and other properties of the Muonic Helium atoms

## List of Publications:

1. Studies on muonic dynamics of liquid D-T-H in dt-muon muonic-molecule resonance formation and its comparison with a D-T system, Can.J.Phys 80,1099(2002).
2. Calculation of the ground state hyperfine structure for muonic helium atoms with the use of some local properties of the wave functions, Modern Physics Lett.B19, No.17(2005).
3. Calculation of the ground state energy and average distance between particles for the non-symmetric muonic He atom, Phys.Rev.A72, 012505(2005).

4. Calculation of the ground state energy and studies of other properties of exotic helium atoms with the use of boundary condition of wave function, *Int.J.Quantum Chem.*101,320(2005).
5. A solution of the DGLAP equation for gluon distribution as a function of  $F_2$  and  $dF_2/d\ln Q^2$  at low- $x$ . The Next to Leading order analysis, *Chin.Phys.Lett.*23,No.2,324(2006).
6. Calculation of the exponent  $\lambda$  based on the behavior of steeply rising gluon distribution function at low- $x$ , *Acta.Phys.Slovaca*,56,No.4,463(2006).
7. Calculation of longitudinal structure function by Regge- like behavior of gluon distribution function at low- $x$ , *Chin.Phys.Lett.*24,No.5,1187(2007).
8. The approximation method for calculation the exponents of the gluon distribution-  $\lambda g$  and the structure function-  $\lambda S$  at low  $x$  in the next to leading order analysis, *Phys.Atom.Nucl.* 71, No.6, 1077(2008).
9. Solutions of independent DGLAP evolution equations for the gluon distribution and singlet structure functions in the next-to-leading order analysis at low  $x$ . *JETP*,106,No.4, 700(2008).
10. Analytical Solutions for the Reduced Cross Section and its Derivatives at Low  $x$  based on gluon and structure function Exponents, *Lithuanian Journal of Physics*, 48, No.2, 121(2008).
11. Analytical approach for the approximate solution of the longitudinal structure function with respect to the GLR-MQ equation at small  $x$ , *Phys. Lett.* B692, 247 (2010).
12. Calculation of Energy and Other Properties of Muonic Helium Atom Using Boundary Conditions of Wave Function, *Commun. Theor. Phys.* 54 ,518 (2010).
13. Determination of the charged pion form factor and coupling constant for  $Q^2=0.6-1.6 \text{ GeV}^2$  and  $Q^2 =2.45 \text{ GeV}^2$ , *IJTP*, 14,3,1-8(2011).

14. Muonic atom formation using the two-state approximation in different energy regions, Phys. Scr. 84, 045704 (2011) .
15. Analytic approach to the approximate solution of the independent DGLAP evolution equations with respect to the hard-Pomeron behavior, JETP, 112, No. 3, 381 (2011).
16. Analytical solution of the longitudinal structure function FL in the leading and next-to-leading-order analysis at low  $x$  with respect to Laguerre polynomials method, Nucl. Phys. A857, 42 (2011).
17. NLO corrections to the hard Pomeron behavior of the charm structure functions  $F_{c^k}$  ( $k = 2, L$ ) at low- $x$ , Nucl. Phys. B857, 143 (2012).
18. The ratio of the charm structure functions at low- $x$  in DIS with respect to the expansion method, JETP142, 3(9), 1 (2012).
19. An analysis of the proton structure function from the gluon distribution function, Phys. Scr. 86, 015101 (2012).
20. The predictions of the charm structure function exponents behavior at low  $x$  in deep inelastic scattering, Eur. Phys. Lett., 100, 41001 (2012).
21. Analysis of the proton longitudinal structure function from the gluon distribution function, Eur. Phys. J. C72, 2221 (2012).
22. Longitudinal structure function  $F_L$  from charm structure function  $F_2^C$ , Commun.Theor.Phys.59, 462 (2013).
23. Decoupling of the DGLAP evolution equations at next-to-next-to-leading order (NNLO) at low- $x$ , Eur. Phys. J.C73, 2412 (2013).
24. The capture of negative muon by hydrogen atoms in excited states using the two-state approximation, Int.J.Mod.Phys.E22, 1350063(2013).
25. Shadowing corrections to the derivative of the reduced cross-section at small  $x$ , Pramana 82, 1031 (2014).

26. Geometrical scaling in charm structure function ratios, Nucl. Phys.A 929, 119 (2014).
27. A Phenomenological Solution Small  $x$  to the Longitudinal Structure Function Dynamical Behavior, Int.J.Mod.Phys.A 29, 1450189 (2014).
28. The behavior of the heavy-quarks structure functions at small- $x$ , Int.J.Mod.Phys.E 24, 1550063 (2015).
29. Analysis of the Longitudinal Structure Function  $FLFL$  from the Non-linear Regge Gluon Density Behavior at Low- $x$ , Chin.Phys.Lett.32, 111101 (2015).
30. Nuclear longitudinal structure function in eA processes at the LHeC, Int.J.Mod.Phys.A 32, 1750197 (2017).
31. The Exponent of the Non Singlet Structure Function at Leading Order up to Next-to-leading Order Analysis, Int.J.Theor.Phys.56, 1646 (2017).
32. The study of deep inelastic scattering process of electron nucleus at LHeC region, Int.J.Mod.Phys.E 26, 1750067 (2017).
33. Phenomenological Behavior of the Hard Pomeron Intercept, Int.J.Theor.Phys.57, 2309 (2018).
34. Analysis of the neutron spin structure function  $g_1^n$  by using the Laplace transform technique, Int.J.Mod.Phys.E 27, 1850071 (2018).
35. The behavior of the structure function by using the effective exponent at low- $x$ , Eur.Phys.J.A 55, 66 (2019).
36. Ratio of the structure functions and the color dipole model bound, Nucl.Phys.A 990, 244 (2019).
37. The non-singlet structure function of light and heavy nuclei up to next-to-leading order analysis at low  $xx$  region, Nucl.Phys.A 986, 195 (2019).
38. Longitudinal structure function from the parton parameterization, Eur.Phys.J.A 56, 262 (2020).

39. Color dipole picture and extracting the ratio of structure functions at small  $x$ , Phys.Rev.C 101, 045202 (2020).
40. The study of the gluon distribution function and reduced cross section behavior using the proton structure function, Nucl.Phys.A 1006, 122062 (2021).
41. Searching for top quark pair production cross section at LHeC and FCC-eh, EPL 130, 51002 (2020).
42. An evaluation of the proton structure functions  $F_2$  and  $F_L$  at small  $x$ , Phys.Lett.B 816, 136274 (2021).
43. Determination of the Interaction Term in Deuteron Nucleus, Phys.Part.Nucl.Lett.18, 166 (2021).
44. Color dipole model bounds with the gluon-gluon recombination correction, Phys.Rev.C 103, 065202 (2021).
45. Nonlinear corrections on the parametrization methods, Eur.Phys.J.C 81, 851 (2021).
46. Higher order approximations to the longitudinal structure function  $F_L$  from the parametrization of  $F_2$  based on the Laplace transformation, Phys.Rev.D 105, 034002 (2022).
47. Parametrization of the nuclear structure function, Phys.Rev.C 107, 025209 (2023).
48. Considering the saturation effect in nuclei based on the Kharzeev-Levin-Nardi model, Phys.Rev.C 106, 025203 (2022).
49. The improved saturation model in the nuclei, Pramana 98, 161 (2024).
50. Nonlinear corrections for the nuclear gluon distribution in eA processes, Chin.Phys.C 48, 033107 (2024).
51. Reduced cross-section in electron-ion colliders at small  $x$ , Eur.Phys.J. Plus 139, 937 (2024).

52. The nuclear shadowing effect of gluon at small  $x$ , Nucl.Phys.A 1053, 122971 (2025).

53. Nonlinear correction to the nuclear gluon distribution function, Eur.Phys.J.A 61, 6 (2025).

54. Nonlinear corrections to the nuclear heavy flavor structure functions, Phys.Rev.C 112, 045203 (2025).

### **Presentation in Conferences:**

1. First regional conference on magnetic and superconducting materials 27-30 september 1999, Tehran, IRAN.
2. 1. Iranian Annual Physics Conference, 27-30 August 2001, sabzevar.
3. Iranian Annual Physics Conference, 25-28 August 2003, Tabriz.
4. Annual Nuclear Conference of IRAN, Boshehr 2004.
5. Iranian Annual Physics Conference, Khoramabad 2005.
4. XIII International Conference "Selected Problems of Modern Theoretical Physics", 23-27 June, 2008, Dubna, Russia.