

## Mohammad Khorrami

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### personal information

**birth date:** 1966/10/04  
**birth place:** Tehran, IRAN  
**natinality:** Iranian

### education

- **BSc of electronics engineering:** October 1984–February 1989, Tehran University, Tehran, IRAN
- **MSc of physics:** February 1989–February 1991, Sharif University of Technology, Tehran, IRAN
- **PhD of physics:** February 1991–November 1993, Sharif University of Technology, Tehran, IRAN

### employment

- researcher in the Institute for Studies in Theoretical Physics and Mathematics, Tehran, IRAN: November 1993–September 2001
- assistant professor in Tehran University, Tehran, IRAN: June 1994–March 1998
- assistant professor in the Institute for Advanced Studies in Basic Sciences, Zanjan, IRAN: April 1998–August 1999
- associate professor in the Institute for Advanced Studies in Basic Sciences, Zanjan, IRAN: September 1999–December 2003
- associate professor in Alzahra University, Tehran, IRAN: January 2004
- professor of physics in Alzahra University, Tehran, IRAN: February 2004

### professional interests

- teaching
- research
- writing (scientific texts)

## **courses taught**

- mathematical physics
- classical mechanics
- thermodynamics
- quantum mechanics
- electrodynamics
- statistical mechanics
- general mathematics (calculus)
- general relativity
- quantum field theory
- physical chemistry
- general physics
- classical field theory
- waves
- special relativity
- mechanics of continuous media

## **research topics**

- general relativity
- discrete physics
- integrability and quantum groups
- two-dimensional gauge theories
- stochastic processes
- conformal and logarithmic-conformal theories
- noncommutative geometry

## **research papers**

1. **M. Khorrami & R. Mansouri**  
Spherically symmetric thin walls  
*Physical Review D* **44**, 2 (15 July 1991) 557–559
2. **M. Khorrami & R. Mansouri**  
Cylindrically symmetric thin walls in general relativity  
*Journal of Mathematical Physics* **35**, 2 (February 1994) 951–958
3. **M. Khorrami**  
Exact solution of the most general minimally coupled one dimensional lattice gauge theories  
*International Journal of Theoretical Physics* **33**, 12 (December 1994) 2297–2316
4. **M. Khorrami, A. Shariati, M. R. Abolhassani, & A. Aghamohammadi**  
A triangular deformation of the two-dimensional Poincaré algebra  
*Modern Physics Letters A* **10**, 11 (10 April 1995) 873–883

5. **A. Aghamohammadi, M. Khorrami & A. Shariati**  
 Jordanian deformation of  $SL(2)$  as a contraction of the Drinfeld-Jimbo deformation of  $SL(2)$   
*Journal of Physics A* **28**, 8 (21 April 1995) L225–L231
6. **M. Khorrami**  
 A general formulation of discrete-time quantum mechanics, restrictions on the action and the relation of unitarity to the existence theorem for initial-value problem  
*Annals of Physics* **224**, 1 (15 November 1995) 951–958
7. **A. Shariati, A. Aghamohammadi, & M. Khorrami**  
 The universal R matrix for the Jordanian deformation of  $sl(2)$ , and the contracted forms of  $so(4)$   
*Modern Physics Letters A* **11**, 3 (30 January 1996) 187–197
8. **M. Khorrami**  
 Phase transition in one-dimensional lattice gauge theories  
*International Journal of Theoretical Physics* **35**, 3 (March 1996) 557–568
9. **M. Khorrami, R. Mansouri & M. Mohazzab**  
 A decumpling model of the universe  
*Helvetica Physica Acta* **69**, 3 (November 1996) 237–240
10. **R. Mansouri & M. Khorrami**  
 The equivalence of Darms-Israe- and distributional method for thin shells in general relativity  
*Journal of Mathematical Physics* **37**, 11 (November 1996) 5672–5683
11. **A. Aghamohammadi, M. Khorrami & A. Shariati**  
 Toda theories as contractions of affine Toda theories  
*Physics Letters B* **389**, 2 (12 December 1996) 260–263
12. **M. Khorrami**  
 Symmetries in discrete-time mechanics  
*Annals of Physics* **252**, 2 (15 December 1996) 357–361
13. **M. Khorrami, A. Shariati & A. Aghamohammadi**  
 $SL_h(2)$ -symmetric torsionless connections  
*Letters in Mathematical Physics* **40**, 1 (April 1997) 95–99
14. **M. Alimohammadi & M. Khorrami**  
 $n$ -Point functions of two dimensional Yang-Mills theories on Riemann surfaces  
*International Journal of Modern Physics A* **12**, 11 (30 April 1997) 1959–1965
15. **A. Aghamohammadi, M. Alimohammadi & M. Khorrami**  
 A pseudo-conformal representation of the Virasoro algebra  
*Modern Physics Letters A* **12**, 18 (14 June 1997) 1349–1353

16. **M. R. Rahimi Tabar, A. Aghamohammadi & M. Khorrami**  
The logarithmic conformal field theories  
*Nuclear Physics B* **497**, 1,2 (21 June 1997) 555–566
17. **A. Shafiekhani & M. Khorrami**  
Exactly and quasi-exactly solvable models on the basis of  $OSp(2|1)$   
*Modern Physics Letters A* **12**, 22 (20 July 1997) 1655–1661
18. **M. Khorrami & A. Alimohammadi**  
Observables of the generalized 2-D Yang-Mills theories on arbitrary surfaces: a path integral approach  
*Modern Physics Letters A* **12**, 30 (28 September 1997) 2265–2270
19. **A. Alimohammadi & M. Khorrami**  
Greens functions of 2-dimensional Yang-Mills theories on nonorientable surfaces  
*Zeitschrift für Physik C* **76**, 4 (December 1997) 729–731
20. **A. Alimohammadi, M. Khorrami, & A. Aghamohammadi**  
Large- $N$  limit of the generalized two-dimensional Yang-Mills theories  
*Nuclear Physics B* **510**, 1,2 (19 January 1998) 313–323
21. **M. Khorrami, A. Aghamohammadi, & M. R. Rahimi Tabar**  
Logarithmic conformal theories with continuous weights  
*Physics Letters B* **419**, 1–4 (12 February 1998) 179–185
22. **M. Alimohammadi, V. Karimipour, & M. Khorrami**  
Exact solution of a one-parameter family of asymmetric exclusion processes  
*Physical Review E* **57**, 6 (June 1998) 6370–6376
23. **M. Khorrami, A. Aghamohammadi, & M. Alimohammadi**  
Derivation of quantum theories: Symmetries and the exact solution of the derived system  
*International Journal of Modern Physics A* **13**, 16 (30 June 1998) 2833–2840
24. **M. Khorrami, A. Aghamohammadi, & A. M. Ghezelbash**  
Logarithmic  $N=1$  superconformal field theories  
*Physics Letters B* **13**, 3,4 (5 November 1998) 283–288
25. **M. Khorrami & A. Aghamohammadi**  
Derivation of theories: structures of the derived system in terms of those of the original system in classical mechanics  
*Il Nuovo Cimento B* **113**, 11 (November 1998) 1361–1371
26. **V. Karimipour & M. Khorrami**  
Anisotropic Heisenberg magnet with long-range interactions. Integrability and phase structure  
*International Journal of Theoretical Physics* **38**, 3 (March 1999) 971–984

27. **A. Aghamohammadi, M. Alimohammadi, & M. Khorrami**  
Uniqueness of the minimum of the free energy of the 2-D Yang-Mills theory at large N  
*Modern Physics Letters A* **14**, 12 (10 April 1999) 751–758
28. **A. M. Ghezelbash, M. Khorrami, & A. Aghamohammadi**  
Logarithmic conformal field theories and AdS correspondence  
*International Journal of Modern Physics A* **14**, 16 (30 June 1999) 2581–2591
29. **R. Mansouri, F. Nasser, & M. Khorrami**  
Effective time variation of G in a model universe with variable space dimension  
*Physics Letters A* **259**, 3, 4 (16 August 1999) 194–200
30. **F. Roshani & M. Khorrami**  
Asymmetric one-dimensional exclusion processes: A two-parameter exactly solvable example  
*Physical Review E* **60**, 3 (September 1999) 3393–3395
31. **A. Shariati & M. Khorrami**  
Equivalence principle and radiation by a uniformly accelerated charge  
*Foundations of Physics Letters* **12**, 5 (October 1999) 427–439
32. **M. Alimohammadi, V. Karimipour, & M. Khorrami**  
A two-parametric family of exclusion processes and its exact solution  
*Journal of Statistical Physics* **97**, 1,2 (October 1999) 373–394
33. **M. Khorrami & M. Alimohammadi**  
Large-N limit of the generalized 2D Yang-Mills theory on cylinder  
*Nuclear Physics B* **577**, 3 (26 June 2000) 609–618
34. **M. Khorrami & V. Karimipour**  
Exact determination of the phase structure of a multi-species asymmetric exclusion process  
*Journal of Statistical Physics* **100**, 5,6 (September 2000) 999–1030
35. **A. Aghamohammadi, A. H. Fatollahi, M. Khorrami & A. Shariati**  
Multispecies reaction-diffusion systems  
*Physical Review E* **62**, 4 (October 2000) 4642–4649
36. **A. Aghamohammadi & M. Khorrami**  
Similarity transformation in one-dimensional reaction-diffusion systems: the voting model as an example  
*Journal of Physics A* **33**, 44 (10 November 2000) 7843–7856
37. **K. Saaidi & M. Khorrami**  
Nonlocal two-dimensional Yang-Mills- and generalized Yang-Mills-theories  
*International Journal of Modern Physics A* **15**, 30 (10 December 2000) 4749–4760

38. **F. Kheirandish & M. Khorrami**  
 Logarithmic two-dimensional spin-1/3 fractional supersymmetric conformal field theories and the two-point functions  
*European Physical Journal C* **18**, 4 (5 February 2001) 795–797
39. **M. Alimohammadi & M. Khorrami**  
 On the phase structure of two-dimensional generalized Yang-Mills theories  
*Nuclear Physics B* **597**, 1–3 (12 March 2001) 652–664
40. **M. Khorrami & A. Aghamohammadi**  
 Phase transition in an asymmetric generalization of the zero-temperature Glauber model  
*Physical Review E* **63**, 4 (April 2001) 042102
41. **F. Kheirandish & M. Khorrami**  
 Two-dimensional fractional supersymmetric conformal field theories and the two-point functions  
*International Journal of Modern Physics A* **16**, 12 (10 May 2001) 2165–2173
42. **F. Kheirandish & M. Khorrami**  
 Two-dimensional fractional supersymmetric conformal- and logarithmic conformal- field theories and the two-point functions  
*European Physical Journal C* **20**, 3 (18 May 2001) 593–597
43. **F. Roshani & M. Khorrami**  
 Solvable multi-species reaction-diffusion processes  
*Physical Review E* **64**, 1 (July 2001) 011101
44. **A. Aghamohammadi & M. Khorrami**  
 Phase transitions in autonomous reaction-diffusion systems on a one-dimensional lattice with boundaries  
*Journal of Physics A* **34**, 37 (21 September 2001) 7431–7439
45. **N. Majd, A. Aghamohammadi, & M. Khorrami**  
 Phase transition in an asymmetric generalization of the zero-temperature  $q$ -state Potts model  
*Physical Review E* **64**, 4 (October 2001) 046105
46. **M. Alimohammadi, M. Khorrami, & A. Aghamohammadi**  
 Exactly solvable models through the empty interval method  
*Physical Review E* **64**, 5 (November 2001) 056116
47. **A. Shariati, M. Khorrami, & A. Aghamohammadi**  
 Autonomous multispecies reaction-diffusion systems with more-than-two-site interactions  
*Physical Review E* **64**, 6 (December 2001) 066102

48. **F. Roshani & M. Khorrami**  
Annihilation-diffusion processes: an exactly solvable model  
*Journal of Mathematical Physics* **43**, 5 (May 2002) 2627–2635
49. **K. Saaidi & M. Khorrami**  
Large- $N$  limit of the non-local Yang-Mills and generalized Yang-Mills theories on a cylinder  
*European Physical Journal C* **23**, 4 (14 May 2002) 757–760
50. **M. Khorrami & A. Aghamohammadi**  
Dynamical phase transitions of a one-dimensional kinetic Ising model with boundaries  
*Physical Review E* **65**, 5 (May 2002) 056129
51. **M. Khorrami, A. Aghamohammadi, & M. Alimohammadi**  
Exactly solvable models through the empty interval method, for more-than-two-site interactions  
*Journal of Physics A* **36**, 2 (17 January 2003) 345–357
52. **A. Aghamohammadi, M. Alimohammadi, & M. Khorrami**  
Exactly solvable models through the generalized empty interval method, for multi-species interactions  
*European Physical Journal B* **31**, 3 (13 February 2003) 371–378
53. **N. Abed-Pour, A. Aghamohammadi, M. Khorrami, & M. Reza Rahimi Tabar**  
Discrete scale invariance, and its logarithmic extension  
*Nuclear Physics B* **655**, 3 [FS] (14 April 2003) 342–352
54. **M. Khorrami, M. Alimohammadi, & A. Shariati**  
Spin 0 and spin 1/2 quantum relativistic particles in a constant gravitational field  
*Annals of Physics* **304**, 2 (April 2003) 91–102
55. **M. Khorrami & A. Aghamohammadi**  
Static- and dynamical-phase transition in one-dimensional reaction-diffusion systems with boundaries  
*Brazilian Journal of Physics* **33**, 3 (September 2003) 421–430
56. **F. Roshani & M. Khorrami**  
Solvable multi-species extensions of the drop-push model  
*European Physical Journal B* **36**, 1 (November 2003) 99–104
57. **F. Roshani & M. Khorrami**  
Exclusion processes and boundary conditions  
*Modern Physics Letters B* **18**, 1 (10 January 2004) 1–9
58. **A. Aghamohammadi & M. Khorrami**  
Dynamical phase transition in the two-point functions of the autonomous one-dimensional single-species reaction-diffusion systems  
*European Physical Journal B* **37**, 2 (January 2004) 193–198

59. **A. Aghamohammadi & M. Khorrami**  
 Exactly solvable models through the generalized empty interval method:  
 multi-species and more-than-two-site interactions  
*International Journal of Modern Physics B18*, 14 (10 June 2004) 2047–  
 2055
60. **M. Khorrami & A. Aghamohammadi**  
 Perturbative calculation of one-point functions of one-dimensional single-  
 species reaction-diffusion systems  
*Physical Review E70*, 1 (July 2004) 011103
61. **M. Alimohammadi & M. Khorrami**  
 Large- $N$  limit of the two-dimensional Yang-Mills theory on surfaces with  
 boundaries  
*Nuclear Physics B696*, 1,2 (September 2004) 55–65
62. **F. Roshani, A. Aghamohammadi, & M. Khorrami**  
 Static and dynamic phase transitions in multidimensional voting models  
 on continua  
*Physical Review E70*, 5 (November 2004) 056128
63. **F. Roshani & M. Khorrami**  
 Asymmetric one-dimensional exclusion processes: a two-parameter discrete-  
 time exactly solvable model  
*Journal of Physics: Condensed Matter 17*, 14 (13 April 2005) S1269–  
 S1273
64. **F. Roshani & M. Khorrami**  
 A family of discrete-time exactly-solvable exclusion processes on a one-  
 dimensional lattice  
*European Physical Journal B45*, 3 (June 2005) 399–404
65. **A. Aghamohammadi & M. Khorrami**  
 Models solvable through the empty-interval method  
*European Physical Journal B47*, 4 (October 2005) 583–586
66. **M. Khorrami & M. Alimohammadi**  
 Large- $N$  behavior of the Wilson loops of generalized two-dimensional Yang-  
 Mills theories  
*Nuclear Physics B733*, 1,2 (16 January 2006) 123–131
67. **M. Alimohammadi & M. Khorrami**  
 Phase transitions of large- $N$  two-dimensional Yang-Mills and generalized  
 Yang-Mills theories in the double scaling limit  
*European Physical Journal C47*, 2 (August 2006) 507-512
68. **M. Khorrami & A. Aghamohammadi**  
 Phase transition in annihilation-limited processes  
*European Physical Journal B56*, 3 (April 2007) 223-227

69. **L. F. Matin, A. Aghamohammadi, & M. Khorrami**  
Exactly solvable reaction diffusion models on a Cayley tree  
*European Physical Journal B* **56**, 3 (April 2007) 243-246
70. **M. Khorrami & M. Alimohammadi**  
Non-Douglas-Kazakov phase transition of two-dimensional generalized Yang-Mills theories  
*European Physical Journal C* **51**, 1 (June 2007) 193-197
71. **A. H. Fatollahi & M. Khorrami**  
Field theories on spaces with linear fuzziness  
*Europhysics Letters* **80**, 2 (October 2007) 20003
72. **A. Shariati, M. Khorrami, & A. H. Fatollahi**  
TeV-photon paradox and space with SU(2) fuzziness  
*Europhysics Letters* **81**, 4 (February 2008) 40003
73. **H. Komaie-Moghaddam, A. H. Fatollahi, & M. Khorrami**  
Field theory amplitudes in a space with SU(2) fuzziness  
*European Physical Journal C* **53**, 4 (February 2008) 679-688
74. **H. Komaie-Moghaddam, M. Khorrami, & A. H. Fatollahi**  
Loop diagrams in space with SU(2) fuzziness  
*Physics Letters B* **661**, 2-3 (20 March 2008) 226-232
75. **A. Aghamohammadi & M. Khorrami**  
The Fokker-Planck equation, and stationary densities  
*International Journal of Theoretical Physics* **47**, 6 (June 2008) 1630-1638
76. **L. Lavaei-Yanesi & M. Khorrami**  
Phase structure of the quartic-cubic generalized two dimensional Yang Mills U(N) on the sphere  
*Journal of Mathematical Physics* **49**, 7 (July 2008) 073514
77. **A. H. Fatollahi, A. Shariati, & M. Khorrami**  
Quantum mechanics on space with SU(2) fuzziness  
*European Physical Journal C* **60**, 3 (April 2009) 489-494
78. **M. Khorrami, A. H. Fatollahi, & A. Shariati**  
Poisson structure on a space with linear SU(2) fuzziness  
*Journal of Mathematical Physics* **50**, 7 (July 2009) 072902
79. **A. Aghamohammadi & M. Khorrami**  
Nonuniform autonomous one-dimensional exclusion nearest-neighbor reaction-diffusion models  
*European Physical Journal B* **74**, 2 (March 2010) 159-164;  
DOI: 10.1140/epjb/e2010-00061-2

80. **A. Shariati, M. Khorrami, & A. H. Fatollahi**  
Statistical mechanics of free particles on space with Lie type noncommutativity  
*Journal of Physics* **A43**, 28 (16 July 2010) 285001;  
DOI: 10.1088/1751-8113/43/28/285001