

Productos de las líneas de Generación y Aplicación del Conocimiento 2009-2013

A continuación se presenta una lista resumida de los productos de cada línea de Generación y Aplicación del Conocimiento. Esta lista corresponde a artículos y libros publicados dentro del periodo a evaluar y solo fueron seleccionados algunos de ellos. El 100% de los miembros de la planta académica tienen publicaciones en el periodo.

OPTICA CUANTICA Y CAOS:

Libros y capítulos en libros

1. **A. B. Klimov, S. M. Chumakov** (Tchoumakov): *A Group-Theoretical Approach to Quantum Optics*, Wiley-VCH (2009), ISBN 978-3-527-40879-5
2. Gustavo López Velázquez, "Partial Differential Equations of First Order and Their Applications to Physics", Second Edition, World Scientific, (2012), ISBN-13 978-981-4390-37-8

Artículos en revistas indexadas

1. C. Muñoz, **A. B. Klimov**, G. Bjork, L. L. Sanchez-Soto "Discrete coherent states for n qubits", Int.J. Quant.Inf. **7**, 17-25 (2009) .
2. **A. B Klimov**, J. L. Romero, G. Bjork, L. L. Sanchez-Soto, Discrete phase-space structure of n-qubit mutually unbiased bases, Ann.Phys. **324**, 53-72 (2009)
3. G. Burlak , A. Díaz-de-Anda , Yu. Karlovich , A.B. Klimov, "Critical behavior of nanoemitter radiation in a percolation material" Phys. Lett. A **373** (2009) 1492-1499
4. Klimov AB, Munoz C, Sanchez-Soto LL, "[Discrete coherent and squeezed states of many-qudit systems](#)", Phys. Rev. A **80**, 043836 (2009) .
5. Burlak G, Sainz I, **Klimov AB**, "[Entanglement enhancement for two spins assisted by two phase kicks](#)", Phys. Rev. A **80**, 024301 (2009).
7. **Klimov AB**, Sych D, Sanchez-Soto LL, "Mutually unbiased bases and generalized Bell states", Phys. Rev. A **79**, 052101 (2009).
8. I. Sainz, **A.B. Klimov**, L. Roa, "Entanglement generation by Dicke phase transition", J. Russ. Laser Research **30**, 480-484 (2009).
9. Bjork G, Soderholm J, Sanchez-Soto LL, **Klimov AB**, [Quantum degrees of polarization](#), Opt. Comm. **283** (2010)
10. [Assessing the Polarization of a Quantum Field from Stokes Fluctuations](#), **Klimov AB**, Bjork G, Soderholm, Phys. Rev. Lett. **105** 153602 (2010)

11. [General approach to SU\(n\) quasi-distribution functions](#), Klimov AB, de Guise H, J. Phys. A **43**, 402001 (2010)
12. Garcia A, Romero JL, Klimov AB, [Generation of bases with definite factorization for an n-qubit system and mutually unbiased sets construction](#), J.Phys. A **43**, 385301 (2010)
13. Rehacek J, Hradil Z, Bouchal Z, Klimov AB, [Nondiffracting beams for vortex tomography](#), Opt. Lett. **35** 2064 (2010)
14. Sainz I, Roa L, Klimov AB, [Unbiased nonorthogonal bases for tomographic reconstruction](#), Phys. Rev. A **81** 052114 (2010)
15. Rigas I, Soto LLS, Klimov AB, [Wigner function for twisted photons](#), Opt. Spectrosc. **108**, 206-212 (2010)
6. Rigas I, Sanchez-Soto LL, Klimov AB, [Non-negative Wigner functions for orbital angular momentum states](#), Phys. Rev. A **81** 012101 (2010)
7. Hradil Z, Rehacek J, Klimov AB, [Angular performance measure for tighter uncertainty relations](#), Phys. Rev. A **81** 014103 (2010)
8. A.B. Klimov, L.L. Sanchez-Soto, Depolarization for quantum channels with higher symmetries, Phys.Scr. **2010**, 14009 (2010)
19. Mahler D, Klimov AB, de Guise H, Dynamical symmetry reduction and discrete tomography of a Xi atom
HYSICA SCRIPTA Volume: **T140** Article Number: 014026 Published: SEP 2010
20. Hradil Z, Rehacek J, Klimov AB, et al., Angular performance measure for tighter uncertainty relations, Phys. Rev. A **81** 014103 (2010)
1. Depolarization for quantum channels with higher symmetries, A.B. Klimov, L.L. Sanchez-Soto, Phys.Scr. **2010**, 14009 (2010)
2. [Quantum process reconstruction based on mutually unbiased basis](#) Fernandez-Perez A, Klimov AB, Saavedra C PHYSICAL REVIEW A
Volume: **83** Issue: **5** Article Number: **052332** 2011
3. [Orbital angular momentum in phase space](#), Rigas I, Sanchez-Soto LL, Klimov AB, et al.
ANNALS OF PHYSICS Volume: **326** Issue: **2** Pages: **426-439** 2011
4. [Group-Theoretical Approach to the Construction of Bases in 2\(n\)-Dimensional Hilbert Space](#)
Garcia A.; Romero J. L.; Klimov A. B., PHYSICS OF ATOMIC NUCLEI **74** 876-883 2011
5. [Conclusive discrimination among N equidistant pure states](#), Roa Luis; Hermann-Avigliano Carla; Salazar R, A.B.Klimov, PHYSICAL REVIEW
A Vol. **84** 014302 2011
6. Entanglement generation in a spin chain by a pulsed magnetic field: analytical treatment Sainz I.; Burlak G.; Klimov A. B., EUROPEAN
PHYSICAL JOURNAL D Volume: **65** 627-634 (2011)
7. Qutrit squeezing via semiclassical evolution Klimov Andrei B.; Dinani Hossein Tavakoli; Medendorp Zachari E. D, NEW JOURNAL OF
PHYSICS Volume: **13** Article Number: **113033** (2012)
24. Isotropic and squeezed fluctuations in an n-qubit system C. Muñoz and A B Klimov J. Phys. A: Math. Theor. **45** 045301 (2012)
8. Differential form of the correspondence rules for the generalized SU(2) Wigner functions B Preciado, J L Romero and A B Klimov Phys. Scr.
147 (2012) 014027
9. SHARING OF D-DIMENSIONAL QUANTUM STATES Jimenez, Omar; Munoz, Carlos; Klimov, Andrei B.; et al. INTERNATIONAL JOURNAL
OF QUANTUM INFORMATION Volume: **10** Issue: **2** Article Number: **1250003** 2012

0. Non-orthogonal Wigner-like mapping Sainz, Isabel; Roa, Luis; **Klimov, A. B.**

JOURNAL OF MATHEMATICAL PHYSICS Volume: **53** Issue: **5** Article Number: **052103 2012**

1. Central-moment description of polarization for quantum states of light Bjork, G.; Soederholm, J.; Kim, Y-S; **Klimov A.B.** Sanchez-Soto., L.L.
PHYSICAL REVIEW A Volume: **85** Issue: **5** Article Number: **053835 2012**

2. Graph states in phase space **Klimov, A. B.**; Munoz, C.; Sanchez-Soto, L. L.

JOURNAL OF PHYSICS A-MATHEMATICAL AND THEORETICAL Volume: **45** Issue: **21** Article Number: **215303 2012**

3. Symmetric discrete coherent states for n-qubits Munoz, C.; **Klimov, A. B.**; Sanchez-Soto, L. L.

JOURNAL OF PHYSICS A-MATHEMATICAL AND THEORETICAL Volume: **45** Issue: **24** Article Number: **244014 2012**

4. [Quantum polarization tomography of bright squeezed light](#), Mueller, C. R.; Stoklasa, B.; Peuntinger, C, **Klimov AB**,

NEW JOURNAL OF PHYSICS Volume: 14 Article Number: 085002 (2012)

5. [Quantum polarization characterization and tomography](#), Soederholm, J.; Bjork, G.; **Klimov, A. B.**; et al.

NEW JOURNAL OF PHYSICS Volume: 14 Article Number: 115014 2012

6. [Optimal quantum tomography of permutationally invariant qubits](#)

Klimov, A. B.; Bjork, G.; Sanchez-Soto, L. L. PHYSICAL REVIEW A Volume: 87 Article Number: 012109 2013

7. [Coherent, isotropic and squeezed states in an N-qubit system](#) **Klimov, Andrei B.**; Munoz, Carlos PHYSICA SCRIPTA Volume: 87 I Article Number: 038110 2013

8. [Optimal unbiased state characterization](#) Sainz, I.; Diaz, J. J.; **Klimov, A. B.** PHYSICA SCRIPTA Volume: T153 Article Number: 014055 2013

9. [Semiclassical approach to squeezing-like transformations in quantum systems with higher symmetries](#) **Klimov, Andrei B.**; Dinani, Hossein; Tavakoli, de Guise, Hubert JOURNAL OF PHYSICS A-MATHEMATICAL AND THEORETICAL Volume: 46 Article Number: 105302 2013

10. [Quantum versus classical polarization states: when multipoles count](#) Sanchez-Soto, L. L.; **Klimov, A. B.**; de la Hoz, P.; et al. JOURNAL OF PHYSICS B-ATOMIC MOLECULAR AND OPTICAL PHYSICS Volume: 46 Article Number: 104011 2013

1. [Nonlinear cross-Kerr quasiclassical dynamics](#) Rigas, I.; **Klimov, A. B.**; Sanchez-Soto, L. L.; et al. NEW JOURNAL OF PHYSICS Volume: 15 Article Number: 043038 2013

2. A. Martínez-Alcántara, E. Ballesteros, C. Feng, M. Rojas, H. Koshinsky, V. Y. Fofanov, P. Havlak, and Y. Fofanov, **S.Chumakov** PIQA: pipeline for Illumina G1 genome analyzer data quality assessment. Bioinformatics, **25**: 2438 – 2439 (2009)

3. **G.V. López** and M. Avila, “Effects on the quantum not and controlled-not gates of a modular magnetic field in the z-direction in a chain of nuclear spin system”, RMF, No. 57 (2011), 215.

4. **Gustavo López** and Jorge Gómez Tejeda Zanudo, “ Study of the Double Nonlinear Quantum Resonances in Diatomic Molecules”, J. Mod. Phys., Vol. 2, (2011) 472.

5. **G.V. López**, “On the Quantization of One-Dimensional Conservative Systems with variable Mass”, J. Mod. Phys. Vol. 3 (2012), 777.

6. **G.V. López and P. López**, “ Study of Decoherence on the Teleportation Algorithm in a Chain of Three Nuclear Spins System”, J. Mod. Phys., 'ol. 4, (2012), 68.
7. **G.V. López and P. López**, “Study of Decoherence of Elementary Gates Implemented in a Chain of Few Nuclear Spins Quantum Computer Model”, J. Mod. Phys., Vol. 3, (2012), 85.
8. **Pablo Carlos López Vázquez and Gustavo López Velázquez**, “Quasi-Non-Markovian Approach to the Study of Decoherence of a Controlled-Not Quantum Gate in a Chain of Few Nuclear Spins Quantum Computer”, J. Mod. Phys., Vol. 3 (2012), 902.
- 9.A. Ortega, K. Stringlo, and **T. Gorin** Mode-resolved travel-time statistics for elastic rays in three-dimensional billiards (9pp). [Phys. Rev. E 85, 36212 \(2012\).](#)
0. B. Köber, U. Kuhl, H.-J. Stöckmann, **T. Gorin**, D. V. Savin, and T. H. Seligman Microwave fidelity studies by varying antenna coupling (9pp).[Phys. Rev. E 82, 207 \(2010\).](#)
1. **T. Gorin and P. C. López Vázquez** Scattering approach to fidelity decay in closed systems and parametric level correlations (10pp). [Phys. Rev. E 88,012906 \(2013\).](#)

	full_record.do?	CitedFullRecord.c	CitingArticles.do?	OneClickSearch.c	AssociatedRecor	publisher_id=WO	CitedPatent.do?
publisher_id=DII3I	SharedRefs.do?	CitedRefList.do?	PatentSearch.do?				

FÍSICA DE MATERIALES:

52. Vázquez-Hernández, F.; Mendoza-Barrera, C.; Altuzar, V.; Meléndez-Lira, M.; **Santana-Aranda, M.A.**; Olvera, M. de la L. "Synthesis and characterization of hydroxyapatite nanoparticles and their application in protein adsorption", en imprenta Materials Science and Engineering B 2010
53. Mota-Pineda, E.; Meléndez-Lira, M.; Zapata-Torres, M.; Pérez-Centeno, A.; **Santana-Aranda, M.A.**; Del Angel, P. “Effect of the plasma composition on the structural and electronic properties of as-grown SiOx/Si heterolayers deposited by reactive sputtering”, Semicond. Sci. & Technol. **24** 105028 (2009)
54. Mota-Pineda E, Melendez-Lira M, Zapata-Torres M, **Santana-Aranda, M.A.**, Photoluminescence of as-grown and thermal annealed SiOx/Si-nanocrystals heterolayers grown by reactive rf sputtering, JOURNAL OF APPLIED PHYSICS **108** 094323 (2010)
55. **C. R. Michel, Héctor Guillén-Bonilla**, Alma H. Martínez-Preciado, Juan P. Morán-Lázaro; “Syntesis and gas sensing properties of nanostructured CoSb2O6 microspheres”, Sensors and Actuators B **143** 278-285 (2009)
56. **C. R. Michel**, A. H. Martínez-Preciado, J. P. Morán-Lázaro. **H. Guillen-Bonilla**, “CO2 detection in nanostructured CoSb2O6 prepared by a non-aqueous colloidal method” ECS Transactions, **25** 49-51 (2010)

57. Vazquez-Hernandez F, Mendoza-Barrera C, Altuzar V, **Santana-Aranda, M.A.**, [Synthesis and characterization of hydroxyapatite nanoparticles and their application in protein adsorption](#), MATERIALS SCIENCE AND ENGINEERING B-ADVANCED FUNCTIONAL SOLID-STATE MATERIALS **174** 290-295 (2010)
58. Mota-Pineda E, Melendez-Lira M, Zapata-Torres M, **Santana-Aranda, M.A.**, : [Effect of the plasma composition on the structural and electro properties of as-grown SiO_x/Si heterolayers deposited by reactive sputtering](#), SEMICONDUCTOR SCIENCE AND TECHNOLOGY **24** 105028 (2009)
59. F. de Moure-Flores, J. G. Quiñones-Galván, A. Guillén-Cervantes, J. S. Arias-Cerón, G. Contreras-Puente, A. Hernández-Hernández, J. Santoyo-Salazar, M. de la L. Olvera, **M. A. Santana-Aranda**, M. Zapata-Torres, J. G. Mendoza-Álvarez, M. Meléndez-Lira "Physical properties of CdTe:Cu films grown at low temperature by pulsed laser deposition" JOURNAL OF APPLIED PHYSICS 112, 113110 (2012)
60. F. de Moure-Flores, J.G. Quiñones-Galván, A. Hernández-Hernández, A. Guillén-Cervantes, **M.A. Santana-Aranda**, M. de la L. Olvera, M. Meléndez-Lira, "Structural, optical and electrical properties of Cd-doped SnO₂ thin films grown by RF reactive magnetron co-sputtering" Applied Surface Science **258** (2012) 2459–2463.
61. **D. O. Oseguera-Galindo, A. Martínez-Benítez, A. Chávez-Chávez**, G. Gómez-Rosas, A. Pérez-Centeno, M. A. Santana-Aranda "Effects of the confining solvent on the size distribution of silver NPs by laser ablation" Journal of Nanoparticle Research 14 (2012) 1133, 6 pgs.
62. **C.R. Michel, Narda L. López-Contreras**, Alma H. Martínez-Preciado, Gas sensing properties of Gd₂O₃ microspheres prepared in aqueous media containing pectin, Sensors and Actuators B 177 (2013) 390–396.
63. **C.R. Michel**, Alma H. Martínez-Preciado, **Narda L. López-Contreras**, Gas sensing properties of Nd₂O₃ nanostructured microspheres, Sensors and Actuators B 184 (2013) 8–14.
64. **C.R. Michel**, A.H. Martínez-Preciado, **N.L. López Contreras** CO₂ and CO Gas Sensing Properties of Submicron, CoSb₂O₆ Wires Prepared by a Colloidal Method, Sensor Lett. 10 (2012) 8-13.
65. **C.R. Michel, N.L. López-Contreras**, A.H. Martínez-Preciado, Gas sensing properties of nanostructured bismuth oxychloride, Sens. Actuat. B, 160 (2011) 271-277.

RELATIVIDAD GENERAL, TEORÍA DE CAMPOS Y ASTROFÍSICA

66. **A.I. Nesterov, Gennady P. Berman**, A. R. Bishop, Non-Hermitian Description of a Superconducting Phase Qubit Measurement, International Journal of Quantum Information (IJQI) **8** 895-904 (2010).
67. **A.I. Nesterov**, S G Ovchinnikov, Spin crossover: the quantum phase transition induced by high pressure, JETPL **90** 580-583 (2009)
68. **A.I Nesterov**, "Non-Hermitian Quantum Systems and Time-Optimal, Quantum Evolution" SIGMA **5** **17** (2009)
69. **A.I Nesterov**, Smooth loops and fiber bundles: Theory of principal Q-bundles, International Journal of Geometric Methods in Modern Physics **77-97** (2009)
70. **A.I Nesterov**, An optimum Hamiltonian for non-Hermitian quantum evolution and the complex Bloch sphere, Physics Letters A **373** pp. 3636 (2009)
71. G. P. Berman, **A. I. Nesterov**, Non-Hermitian adiabatic quantum optimization, International Journal of Quantum Information (IJQI) **7** 1469-1 (2009).
72. **Grana, JAP; Kemp, SN; de la Fuente, E.** [The unusual interacting pair of galaxies IC 3481 and IC 3481A: An optical-NIR photometric and spectroscopic analysis](#), NEW ASTRONOMY, **14** 556-566 (2009).
73. **Phillips, JP; Ramos-Larios, G.** [Spitzer mid-infrared observations of seven bipolar planetary nebulae](#), MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY, **405** 2179-2205 (2010)
74. **Phillips, JP; Perez-Grana, JA; Ramos-Larios, G.** [The nature of G52.381-0.849 and G56.240-0.345: young stellar objects associated with extended mid-infrared emission?](#), MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY, **402** 1657-1666, (2010)
75. **Ramos-Larios, G; Phillips, JP;** [The haloes of planetary nebulae in the mid-infrared: evidence for interaction with the interstellar medium](#), MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY, **400** 575-588 (2009)
76. **Phillips, JP; Ramos-Larios, G;** Schroder, KP, [Rings and haloes in the mid-infrared: the planetary nebulae NGC 7354 and NGC 3242](#), MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY, **399** 1126-1144 (2009)
77. **Phillips, J.P., Perez-Grana, J.A.**, The Mid- and Near-Infrared Structures of Seven Young Stellar Bipolar Outflows, Monthly Notices of the Royal Astronomical Society, **393**, 354 (2009)
78. **Phillips, J.P., Zepeda-Garcia, D.**, The Near- and Far-Infrared Colours of Many Planetary Nebulae, Monthly Notices of the Royal Astronomical Society, **394**, 1875 (2009)
79. **Phillips, J.P., Ramos-Larios, G.**, The Mid-Infrared Colours and Structures of Galactic Bulge, Disk and Magellanic Planetary Nebulae, Monthly Notices of the Royal Astronomical Society, **396**, 1915 (2009)

80. **Phillips, J.P., Ramos-Larios, G., Perez-Grana, J.A.**, Wind-Swept Clouds and Triggered Star-Formation associated with the Supernova Remnant G357.7+0.3, *Monthly Notices of the Royal Astronomical Society*, **397**, 1215 (2009)
81. **Phillips, J. P., Ramos-Larios, G.**, Schröder, K.-P., Contreras Verbena, J. L., Rings and haloes in the mid-infrared: the planetary nebulae NGC 7354 and NGC 3242, *Monthly Notices of the Royal Astronomical Society*, **399**, 1126 (2009)
82. **Ramos-Larios, G., Phillips, J. P., Perez-Grana, J.A.**, The Nature of the Compact HII Region Sh 2-89 and its Stellar Content, *Monthly Notices of the Royal Astronomical Society*, **405**, 245 (2010)
83. **Phillips, J. P., Ramos-Larios, G.**, Spitzer Mid-Infrared Observations of Seven Bipolar Planetary Nebulae, *Monthly Notices of the Royal Astronomical Society*, **405**, 2179 (2010)
84. **Marquez-Lugo, R.A., Phillips, J.P.**, 2010, Imaging of four Galactic Supernova Remnants in the mid-infrared, and their Interaction with the Interstellar Medium, *Monthly Notices of the Royal Astronomical Society*, **407**, 94 (2010)
85. **Ramos-Larios, G., Phillips, J.P.**, Cuesta, L.C., The Halo and Rings of the Planetary Nebula NGC 40 in the Mid-Infrared, *Monthly Notices of the Royal Astronomical Society*, en prensa (2010)
86. **Phillips, J.P., Marquez-Lugo, R.A.**, The Interaction of Supernova Remnant G357.7+0.3 with the Interstellar Medium, *Monthly Notices of the Royal Astronomical Society*, **409**, 701 (2010)
87. **Phillips, J.P.**, Cuesta, L.C., **Ramos-Larios, G.**, Mapping and Spectroscopy of the Planetary Nebula NGC 7009 in the Visual and Infrared, *Monthly Notices of the Royal Astronomical Society*, **409**, 881 (2010)
88. **Phillips, J.P., Marquez-Lugo, R.A.**, MIPS GAL 24 μ m Observations of Galactic Planetary Nebulae, *Monthly Notices of the Royal Astronomical Society*, **410**, 2257 (2011)
89. Quino-Mendoza, J.A., **Phillips, J.P., Ramos-Larios, G.**, Mid-Infrared Observations of Planetary Nebulae detected in the GLIMPSE 3D Survey, *Revista Mexicana de Astronomia y Astrofisica*, en prensa (2011)
90. **Phillips, J.P., Marquez-Lugo, R.A.**, Mid- and Far-Infrared Photometry of Galactic Planetary Nebulae with the AKARI All-Sky Survey, *Revista Mexicana de Astronomia y Astrofisica*, en prensa (2011)
91. **Phillips, J.P., Ramos-Larios, G.**, Guerrero, M.A., Optical and Mid-Infrared Observations of the Planetary Nebula NGC 6781, *Monthly Notices of the Royal Astronomical Society*, en arbitraci3n (2011)
92. **Alexander I. Nesterov**, Gennady P. Berman, Jos3 Manuel S3nchez Mart3nez and Richard T. Sayre Noise-assisted quantum electron transfer in photosynthetic complexes *Journal of Mathematical Chemistry*, 1-28(2013) 2013

93. Alexander I. Nesterov , Gennady P. Berman and Alan R. Bishop	Non-Hermitian approach for modeling of noise-assisted quantum electron transfer in photosynthetic complexes	Fortschr. Phys. 61, No. 2 – 3, 95 – 110 (2013)	2013
94. Alexander I. Nesterov , Sergey G. Ovchinnikov and Grigori A. Iaroshenko	Quench dynamics in spin crossover induced by high pressure	Central European Journal of Physics, 1-10(2013)	2013
95. Alexander Nesterov , Juan Carlos Beas Zepeda and Gennady P. Berman	Non-Hermitian quantum annealing in the ferromagnetic Ising model	Physical Review A 87, 042332 (2013)	2013
96. Alexander Nesterov and Gennady P. Berman	Quantum search using non-Hermitian adiabatic evolution	Physical Review A 86, 052316 (2013)	2012
97. Alexander Nesterov and Gennady P. Berman	Quantum search using non-Hermitian adiabatic evolution	Physical Review A 85, 052125 (2013)	2012