Name, academic position and degree

Ljuan Ljubomirov Gurdev, Assoc. Prof. (Senior Research Scientist), PhD

Affiliation – research organization, department

Academician Emil Djacov Institute of Electronics at the Bulgarian Academy of Sciences (IE – BAS), Laser Radar Laboratory (LRL)

Education

Higher Education, Physics, Radiophysics and Electronics, Faculty of Physics at the St. Kliment Ochridsky University of Sofia, Bulgaria, 1970.

PhD (Physical and Mathematical Sciences), P. N. Lebedev Institute of Physics at the Russian (USSR) Academy of Sciences (FIAN), Moscow, 1978.

Academic positions in the last five years

Assoc. Prof. in IE – BAS, LRL

Main research area and subareas

Laser remote sensing of the atmosphere, thermonuclear plasma and tissue-like turbid media, and gamma ray sensing of optically opaque dense media – interdisciplinary areas involving the fields of optics, spectroscopy, quantum electronics, atmospheric physics, plasma physics, tissue optics, nuclear spectroscopy and quantum electrodynamics, mathematical modeling of physical processes, etc

Additional research areas and subareas

Thermal generation of sound in liquids by laser radiation, cosmic ray astrophysics, coherent population trapping in vapours of alkali metals, quantum optics, etc.

Specializations abroad and international collaborations

PhD student in FIAN from 1974 to 1977. Participation in international research projects according contracts, e. g., with Scientific Production Association "Zond", Institute of Optoelectronics, Munich, Siemens Medical Solutions, Erlangen, EURATOM, etc.

Scientific awards and membership in scientific societies

First prize from the Young Scientist Best Work Competition in FIAN, 1978; An award of the Bulgarian National Science Fund, 1995; An award of INRNE – BAS for 2006 for the best work in the applied area; The prize "Academician Emil Jakov" of IE – BAS, 2000 and 2013.

Number of scientific publications: 104 (55 of them with impact factor and impact rank)

Number of citations of the scientific publications: 148

List of Publications

of Dr. Ljuan Gurdev, Laser radar Laboratory, Institute of Electronics - BAS

A. ARTICLES in JOURNALS, BOOKS, and PROC. SPIE

A1. А.И.Божков, Ф.В.Бункин, Л.Л.Гырдев, "Влияние волнения поверхности жидкости на звуковое поле, возбуждаемое в ней лазерным

излучением с модулированной интенсивностью", Квантовая Электроника, т.3, 1976, No7, 1494-1500.
A2. А.И.Божков, Л.Л.Гырдев, "Влияние волнения поверхности жидкости на излучение "плавающей" оптико-акустической антенны", Письма в ЖТФ, т.3, 1977, вып.17, 868-873.
A3. А.И.Божков, Л.Л.Гырдев, "Статистические характеристики "плавающей" оптико-акустической антенны", Квантовая Электроника, т.5, 1978, No5, 1019-1027.
A4. А.И.Божков, Л.Л.Гырдев, "Фокусирующий оптико-акустический излучатель звука", Препринт No160, ФИАН, 1978.
A5. В.Н.Набоко, В.М.Митев, Л.Л.Гырдев, "Измерение слабых лидарных сигналов в присутствие интенсивного фона при импульсном лазерном зондировании атмосферы", БФЖ, т.10, 1983, No2, 231-235.
A6. Л.Л.Гырдев, "Области максимальной точности при измерении слабых лидарных сигналов в режиме счета фотонов", БФЖ, т.11, 1984, No2, 222-229.
A7. В.Н.Набоко,В.М.Митев,Л.Л.Гърдев,И.В.Григоров,Л.Иванов, "Фотоприемник в режим на броене на фотони", Техн. мисъл, год.XXI, 1984, No6, 29-32.
A8. В.Н.Набоко, В.М.Митев, Л.Л.Гырдев, В.Б.Симеонов, И.В.Григоров, "Изследване на динамичния диапазон и бързодействие на фотоумножител, работещ в режим на броене на фотони", Техн. мисъл, год.XXII, 1985, No3, 43-47.
A9. В.Н.Набоко, Л.Л.Гырдев, "Върху точността на измерване на лидарни ехо-сигнали с информационен канал", Техн. мисъл, год.XXIV, 1987, No2, 23-27.
A10. Л.Л.Гырдев, "Непуассоновские статистические моменты фотоотсчетов, регистрируемых инерционной пересчетной схемой", Оптика атмосферы, т.1, 1988, No11, 34-37.
A11. Э.С.Фердинандов, В.И.Цанев, Л.Л.Гырдев и др. "Энергетический баланс системы дистанционного зондирования объектов в инфракрасном диапазоне", Оптика атмосферы, т.1, 1988, No8, 91-96.
A12. L.L.Gurdev, "Measurement of the atmospheric turbulence parameter by means of coherent detection of aerosol backscattered cw laser beam radiation", Rev. Roum. Phys., t.34, 1989, NN 7 - 9, 1069-1072.
A13. L.L.Gurdev, E.V.Stoykova, "Dependence of angular truncation error on photoreceiver position in integrating nephelometer with a laser source", Rev.Roum.Phys., t.34, 1989, NN 7-9, 1063-1069.
A14. L. L. Gurdev, T. N. Dreischuh, and D. V. Stoyanov, "Deconvolution Techniques for Improving the Resolution of Long-Pulse Lidars", J. Opt. Soc. Am. A , vol. 10, 1993, No 11, 2296-2306.
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Scattering", Journ. Mod.Opt., vol.40, 1993, No.3, pp.367-371.
A16. T.N. Dreischuh, L.L. Gurdev, and D.V. Stoyanov, “Influence of the pulse-shape uncertainty on the accuracy of the inverse techniques for improving the resolution of long-pulse lidars”, Proc. SPIE 1983, 1060-1061 (1993).
A17. I.D.Ivanova, L.L. Gurdev, V.M.Mitev, "A Technique for Remote Sensing the Atmospheric Temperature and Pressure, Based on Fabry-Perot Interferometry of Rotational Raman Scattering Spectrum", NATO ASI Series, Vol.24: Remote Sensing and Global Climate Change, ed. by Robin A. Vaughan and Arthur P. Gracknell, 295-302 (Springer Verlag, Berlin, 1994).
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A19. I.D.Ivanova, L.L. Gurdev, V.M.Mitev, "Intercomparison Between the Efficiencies of Rotational Raman and Rayleigh Techniques for Measuring Atmospheric Temperature", Bulg. Journ. Phys. 21, 30-40 (1994)..
A20. T.N. Dreischuh, L.L. Gurdev, and D.V. Stoyanov, “Effect of pulse-shape uncertainty on the accuracy of deconvolved lidar profiles”, J. Opt. Soc. Am. A 12, 301-306 (1995).
A21. D.V. Stoyanov, L.L. Gurdev, and T.N. Dreischuh, “Reduction of the pulse spike cut error in Fourier-deconvolved lidar profiles”, Appl. Opt. 35, 4798-4802 (1996).
A22. T.N. Dreischuh, L.L. Gurdev, and D.V. Stoyanov, “Lidar profile deconvolution algorithms for some rectangular-like laser pulse shapes”, Advances in Atmospheric Remote Sensing with Lidar, A.Ansmann, R. Neuber, P.Raioux, U. Wandinger, eds., 135-138 (Springer Verlag, Berlin, 1996); ISBN 3540618872
A23. L.L. Gurdev, T.N. Dreischuh, and D.V. Stoyanov, “Deconvolution algorithms for improving the resolution of exponential-shape pulse lidars”, Proc.SPIE 3052, 310-315 (1996).
A24. L. L. Gurdev, T. N. Dreischuh, and D. V. Stoyanov, “Pulse-backscattering tomography based on lidar principle”, Opt. Commun. 151, 339-352 (1998).
A25. V.Anguelov and S.Petrov, L.Gurdev and J.Kourtev, “On the Numerical Analysis of Triplet Pair Production Cross Sections and the Mean Energy of Produced Particles for Modelling Electron-Photon Cascading in a Soft Photon Field”, J.of Phys. G 25, 1733-1747 (1999).
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A28. D.V. Stoyanov, L.L. Gurdev, O.I. Vankov, G.V. Kolarov, “Lidar Profiling by Rectangular-Like Chopped Laser Pulses”, Optical Engineering 39, 1556

(2000), awarded by Acad.E.Jakov Award, 2000, IE BAS.
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A40. Ljuan L. Gurdev, Dimitar V. Stoyanov, Tanja N. Dreischuh, Christo N. Protochristov, and Orlin I. Vankov, “Gamma-ray backscattering tomography approach based on the lidar principle”, IEEE Transactions on Nuclear Science 54, No.1, part 2, 262-275 (2007).
DOI: 10.1109/TNS.2006.887857.
A41. Ljuan L. Gurdev, Tanja N. Dreischuh, Dimitar V. Stoyanov, Christo N. Protochristov, “Gamma-Ray Lidar (GRAYDAR) in-Depth Sensing of Optically Opaque Media”, in “Nuclear Methods for Non-Nuclear Applications”, ed. Ch. Stoyanov (Heron Press, Sofia, 2007), ISBN: 978-954-580-209-6; Bulg. J. Phys. 34 (s1), 333-348 (2007).

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A43. Ljuan L. Gurdev, Tanja N. Dreischuh, Dimitar V. Stoyanov, “Potentialities of lidar-type single-sided optical tomography of tissues”, Proc. SPIE 6604, paper # 66042I (2007).
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A47. Ljuan L. Gurdev, Tanja N. Dreischuh, Dimitar V. Stoyanov, Christo N. Protochristov, “On the Possibility of Determining the Distribution of a Substance Penetrating into a Dense MediumUsing Gamma-Ray Detection and Ranging Approach”, Acta Physica Polonica A, vol. 118, No. 4, 540-549 (October 2010), PL ISSN 0587-4246 (printed), PL ISSN 1898-794X (online).
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A51. Ljuan Gurdev, Tanja Dreischuh, Dimitar Stoyanov, Chapter 13 “Deconvolution of Long-Pulse Lidar Profiles”, in “Lasers – Applications in Science and Industry”, K. Jakubczak, Ed., InTech, ISBN 978-953-307-755-0 (2011), DOI: 10.5772/24134, pp. 249-276. Available from: http://www.intechopen.com/books/lasers-applications-in-science-and-

industry/deconvolution-of-long-pulse-lidar-profiles.
A.52. S. Gateva, L. Gurdev, E. Alipieva, E. Taskova and G. Todorov, "Narrow Structure in the Coherent Population Trapping Resonances in Rubidium and Rayleigh Scattering", J. Phys. B: At. Mol. Opt. Phys. 44 (2011) 035401.
A53. Ljuan Gurdev, Tanja Dreischuh, Irina Bliznakova, Orlin Vankov, Lachezar Avramov and Dimitar Stoyanov, "Scattering of a laser beam in turbid media with forward-peaked Henyey-Greenstein indicatrices", Physica Scripta, vol. T 149 014074 (2012). doi:10.1088/0031-8949/2012/T149/014074.
A54. Tanja N. Dreischuh, Ljuan L. Gurdev, Dimitar V. Stoyanov, "Efficiency of determining electron temperature and concentration in thermonuclear plasmas by Thomson scattering lidar", Proceedings of SPIE, Vol. 8770 (SPIE, Bellingham, WA, USA, 2013), 877012.
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A56. D. Stoyanov, T. Dreischuh, I. Grigorov, Z. Peshev, A. Deleva, G. Kolarov, L. Gurdev, N. Kolev, Ts. Evgenieva, V. Mitev, E. Toncheva, V. Pencheva, "LIDAR sensing of aerosol processes over Sofia region in the frame of the European Aerosol Research Lidar Network (EARLINET)", Bulgarian Journal of Physics 40, 186-192 (2013);
D. Stoyanov, T. Dreischuh, I. Grigorov, Z. Peshev, A. Deleva, G. Kolarov, L. Gurdev, N. Kolev, Ts. Evgenieva, V. Mitev, E. Toncheva, V. Pencheva, "LIDAR sensing of aerosol processes over Sofia region in the frame of the European Aerosol Research Lidar Network (EARLINET)", Proceedings of the Second Bulgarian National Congress on Physical Sciences, Paper S05.23 (7 pages) Heron Press Ltd., ISBN 978-954-580-333-8 (2014).
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A58. Ljuan L. Gurdev, Tanja N. Dreischuh, Dimitar V. Stoyanov, "Finite system response shape due distortions of the temperature and density profiles in fusion plasmas recovered using Thomson scattering lidar", Proceedings of SPIE, Vol. 9447 (SPIE, Bellingham, WA, USA, 2015), 94470T; doi: 10.1117/12.2175654.
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fluctuations", Proceedings of SPIE, Vol. 9447 (SPIE, Bellingham, WA, USA, 2015), 94470S; doi: 10.1117/12.2178247.
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B. FULL-TEXT CONFERENCE PROCEEDINGS
B1(66). А.И.Божков, Л.Л.Гырдев, "Влияние волнения поверхности жидкости на диаграмму направленности "плавающей" оптико-акустической антенны", Докл.IX Всес. акуст. конф./ч.IVв/, Москва, 1977, 9-12.
B2(67). В.Н.Набоко,Л.Л.Гырдев, "Статистическо моделиране на реален информационен канал, работещ в режим на броене на фотони", Сб.трудове на научна сесия във ВНВУ "В.Левски", В.Търново, 1982.
B3(68). В.Н.Набоко,Л.Л.Гырдев, "Статистическо моделиране на алгоритми за регистрация на слаби лидарни сигнали в присъствие на интензивен фон при импулсно лазерно сондиране на атмосферата", Сб.трудове на научна сесия във ВНВУ "В.Левски", В.Търново, 1982.
B4(69). Л.Л.Гърдев, И.М.Узунов, "Измерване на слаби лидарни сигнали при импулсно лазерно сондиране на атмосферата и фиксирана средна мощност на лидарния лазерен източник", Тр.II Нац. Симп. "Физика и електронизация", Пловдив, 1982, т.II, 398-402.
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B8(73). В.Н.Набоко, Л.Л.Гырдев, "Върху динамичната грешка на лидарен

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