

ACADEMICIAN

MISHIK AIRAZAT KAZARYAN



CURRICULUM VITAE

Current Address: Lebedev Physical Institute (LPI), Russian Academy of Sciences (RAS), Leninsky prospekt, 53, Moscow 119991, Russia, Tel.: (7-095) 135-7890, Fax: (7-095) 135-7880, E-mail: kazar@sci.lebedev.ru

Place of Birth: Razdan, Armenia

The short biography can be found in “Who’s Who in the World 2001”, 18th Edition, page 1097.

EDUCATION, ACADEMIC DEGREES, TITLES

- Graduated from Moscow Physico-Technical Institute, Ph.D, Doctor of Sciences (Dr.Hab.), Professor, Foreign member of the National Academy of Sciences of Armenia
- **Languages spoken:** Russian, Armenian, English

AWARDS

USSR State Prize in Science and Technology -1980.

N.N.Semenov medal of A.M.Prokhorov Academy of Engineering Sciences -2006

A.M.Prokhorov medal of A.M.Prokhorov Academy of Engineering Sciences -2007

EMPLOYMENT

- December 1970– present: Lebedev Physical Institute, Optical Department: 1990 - present - Leading Research Fellow, 1978 -1990 - Senior Research Fellow, 1970 - 1978 - Research Fellow.

MEMBERSHIP

- Member of Council of Euro-Asian Physical Society (EAPS),
- Member of A.M.Prokhorov Academy of Engineering Sciences

VISITING POSITIONS AND INVITED TALKS

- 2008 – Taiwan, 2006 – Taiwan, 2005 – Armenia, 2003 – Taiwan, 2002 – USA, 2001 – USA, 2001 – Greece, 2000 – USA, 1999 – USA, 1998 – Sweden, 1998 – USA, 1998 – USA, 1997 –Italy, 1997 – USA, 1997 – Australia, 1996 – Australia, 1995 – USA, 1995 – Japan, 1991 – Ukraine, 1980 – Bulgaria, 1977 – DDR.

EDITORIAL, CONFERENCE ORGANIZATION AND OTHER ADDITIONAL WORK EXPERIENCE

1973, 1975, 1977, 1979, 1981, 1984, 1987, 1989, 1992, 1994, 1996, 1998, 2002, 2004, 2006, 2008
Member of the Program Committee of the Symposia on Metal Vapor Lasers and Applications held in Rostov-on-Don, Russia

1998, 1999, 2000, 2001 Member of the International Conference Committee "LASERS, Chairman of sessions. Tucson, Arizona, USA.

1995,1997,1999, 2001, 2003,

2005, 2007, 2009 Chairman of sessions at the International Conference "Inversion Population in Atoms and Molecules" Tomsk, Russia.

1996, 2000, 2004 Editor of Selected Papers CIS SPIE: v. 2728 "Laser Use in Oncology", 252 pp. (1996); v. 4059 "Laser Use in Oncology II", 230pp. (2000), "Laser Use in Oncology III" (2004) in print

2002 - present: Editor of *Lasers in Engineering*

2005 – present *Editor of International Journal of Alternative Energy & Ecology*

1994,1995,1996 Invited Editor of *J. of Russian Laser Research*, No,1, v,15, No.2, v.16; No.4, v.17. Plenum Pub, Corp. NY

1997 Invited Editor of the *Journal of Moscow Physical Society*, No.2, No.4, v.7. Allerton Press Inc. NY.

1989 – present Member of Scientific Councils at the LPI, RAS, and Chernovtsy State University, Ukraine.

1972, 1976, 1990, 1995, 2000, 2006, 2007, 2009 Contacts with Industry: Industrial type copper vapor lasers; Laser projection microscope; Laser TV systems; Medical Laser Systems; Tunable laser systems; Laser Isotope Separation systems

TEACHING COURSES

1988–1990 Moscow Medical Academy: "Laser Use in Medicine".

SUPERVISION OF POSTGRADUATES AND STUDENTS

2002–2006 Under my scientific supervision 7 postgraduates prepared PhD Theses and 10 students Diploma Theses (MD).

FIELDS OF RESEARCH

Metal-Vapor Lasers, Laser Microscopy, Laser Acceleration of Microparticles, Visualization of Infrared Images, Optical Systems with Laser Amplifier, TV Laser Projection Systems, Lasers Use In Medicine and Biology, Laser Microprocessing of Materials, Laser Isotope Separation. Photochemistry and Photo-catalyze, Nanotechnology, Photoluminescence.

PUBLICATIONS

Monographs:

1. Optical Systems with Brightness Amplifiers. Gorky, IAP, RAS, 167 p., 1988 (in Russian)
2. Self-Terminating Atomic Metal Lasers. Moscow, Nauchnaya Kniga, 544 p., 1998 (in Russian)
3. Laser Isotope Separation in Atomic Vapor. Moscow, Fizmatlit, 208 p., 2004 (in Russian)
4. Copper-Vapor Lasers. Moscow, Fizmatlit, 310 p, 2005 (in Russian)
5. Laser Isotope Separation in Atomic Vapor. Weinheim, WILEY-VCH VERLAG GmbH & Co. KGaA,

2006

6. Self-Terminating Atomic Metal Lasers-2. Moscow, Fizmatlit, 2008 (in Russia)

More than 300 Journal papers and Conference abstracts

1. M.A.Kazaryan, G.G.Petrash, A.A.Isaev. Pulsed metal vapor lasers //IEEE J. Quant. Elect., QE 9, N 6, pp. 644-645, 1973.
2. M.A.Kazaryan, K.I.Zemskov, A.A.Isaev, S.V.Markova, G.G.Petrash. Active Optical systems with brightness amplification by pulsed metal-vapor lasers. //Optics communications, v. 18, N 1, p. 144, 1976 (Conference digest, Amsterdam 1976).
3. F.V. Bimkin, M.A.Kazaryan, M.A.Kondratiev, G.G.Petrash, A.M.Prochorov, V.V.Savransky, I.N.Sisakyan, G.A.Sitnikov, K.I.Zemskov. Projection system with brightness amplifier for biology and medicine// Microscopia Acta, v.82, N3, p.229-233, 1979.
4. M.A.Kazaryan, K.I.Zemskov, G.G.Petrash. Lasers-Projektions mikroskop. //Bild und Ton, 1979, 32, 8, p.239-240, 1979.
5. M.A.Kazaryan, K.I.Zemskov, V.V.Savransky, G.A.Shafeev. Light Laser Projection Microscope, Projiziertes Microscopbild.// Laser-Electro-Optic, Mr4, p.44, 1980.
6. M.A.Kazaryan, K.I.Zemskov, G.G.Petrash. Gold-vapor brightness amplifier.// Optics Communication, v.33,p.209-212, 1980.
7. M.A.Kazaryan, S.F.Lyuksyutov, S.G.Odulov, N.G.Orlova, G.G.Petrash, M.S.Soskin, K.I.Zemskov. Holographic preamplifier in active optical system. EQEC'88, European conference on quantum electronics.// Digest of Technical Papers, TuCD4, University of Hannover, Hannover-FRG, 1988.
8. D.Astadjev, M.A.Kazaryan, N.Vuchkov, K.Zemskov, A.Isaev, G.Petrash, N.Sabotinov. Copper bromide vapors - image brightness amplifiers.// Proceeding SPIE, vol.1041, Metal Vapor, Deep Blue and Ultraviolet Lasers, 1989,p.74-76
9. M.A.Kazaryan, K.I.Zemskov, G.G. Petrash. Brightness amplifiers in optical systems. //Proceeding SPIE, Vol.1041, Metal Vapor, Deep Blue and Ultraviolet Lasers, 1989, p.77-84.
10. M.A.Kazaryan, K.I.Zemskov, A.V.Ivanov, A.Ya.Fayenov, V.V.Chvykov. Application of metal-vapor lasers for selective effect to pathological tissues.// Proceedings SPIE, Vol.1041, Metal-Vapor, Deep-Blue and Ultraviolet Lasers, 1989, p.86-90.
11. Yu.D.Dumarevsky, M.A.Kazaryan, L.V.Medvedeva, V.V.Chvykov. Large-screen projection system with a laser and an electro-optical amplifier// J. of Russian Laser Research 1995, v16, N 2, p.162-163.
12. M.A.Kazaryan, G.P.Kuzmin, E.A.Morozova, A.V.Tananakin. An experimental set-up based on a laser projection microscope for investigation of combined laser effects on biological objects //J. of Russian Laser Research, 1995, v.16, N 2, p.159-161.
13. M.A.Kazaryan, Yu.P.Vasilev, Yu.D.Dumarevsky, K.I.Zemskov, L.V.Medvedeva, G.A.Petrovicheva, V.V.Chvykov. A Phase Object in the Projection System with Brightness Amplification.// Physica Scripta, 1995, v.51, p. 92-93.
14. M.A.Kazaryan, N.P.Korotkov, S.D.Zakharov. Hydrodynamic Flows in Suspensions Caused by Powerful Pulse-Periodic Light Beams. //Physica Scripta, 1995, v.52, p.678-679.
15. M.A.Kazaryan, D.V.Vlasov, P.I.Ivashkin, A.M.Prokhorov, V.A.Gorborenko, A.S.Skripnichenko, V.V.Fandeev. An Optical Scheme of the Laser Reproduction of Information on Large Screens.// Physica Scripta, 1995, v.52, p.680-682.
16. V.V.Buchanov, M.A.Kazaryan, E.I.Molodykh, V.A.Shcheglov. Metal-vapor lasers with a high flow rate.// J.of Russian Laser Research, 1996, v.17, N 4, p.360-361.
17. V.V.Buchanov M.A.Kazaryan. Feasibility of Continuous Ultraviolet Lasing from Cu II in a Plasma Flow.// Physica Scripta, 1996, v.53, p.571-574.
18. M.A.Kazaryan, Yu.P.Timofeev. Spectral conversion in projection laser microscopes.// J. of Russian Laser Research, 1996, v.17, N 5, p.495-500.
19. M.A.Kazaryan, Yu.P.Vasilev, N.P.Korotkov, A.M.Kazaryan, N.A.Lyabin. The possibility of creation of projection stereomicroscope on the basis of the metal-vapor active media. //SPIE, 1997, v.3317, p. 275-278.
20. S.A.Skipetrov, M.A.Kazaryan, N.P.Korotkov, S.D.Zakharov. Diagnostics of laser-induced particle motion in dense random media using temporal field correlation.// J. Moscow Phys. Soc., 1997, 7 , p.411-420.

21. M.A.Kazaryan, Yu.M.Mokrushin, A.M.Prokhorov, O.V.Shakin. Copper-Vapor Laser with Intra-Cavity Acousto-Optical Output Control.// European Optical Society, Topical meetings digest series: v.15, 1997, p, 108-110.
22. M.A.Kazaryan, Yu.M.Mokrushin, A.M.Prokhorov, O.V.Shakin. Copper-Vapor Laser with Intra-Cavity Acousto-Optic Output Control. //Physica Scripta, 1997, v.55, 464-465.
23. M.A.Kazaryan, Yu.M.Mokrushin, A.M.Prokhorov, O.V.Shakin. Prospects of Employing Metal-Vapor Pulsed Lasers for TV Picture Projection on Large Screens.// J. of Russian Laser Research, 1997, v.18, N 6, p.507-513.
24. S.A.Skipetrov, M.A.Kazaryan, N.P.Korotkov, S.D.Zakharov. Multiple Light-scattering Probes of Laser-induced Particle Flows in Random Media: Theoretical Consideration.// J. Physica Scripta, 1998, v.57, p.416-419.
25. S.A.Skipetrov, M.A.Kazaryan, S.S.Chesnokov, S.D.Zakharov, M.A.Kazaryan, N.P.Korotkov, V.A.Shcheglov. Multiple dynamic scattering of laser radiation on light-induced jet of microparticles in suspension.// Quantum Electronics, 1998, 28 (5), p.434-438.
26. S.A.Skipetrov, M.A.Kazaryan, S.S.Chesnokov, S.D.Zakharov, N.P.Korotkov, V.A.Shcheglov. Dynamic multiple scattering of laser radiation on light-induced flows of microparticles in suspension.// SPIE, 1998, v.3734, p.217-224.
27. M.A.Kazaryan, N.P. Korotkov, S.E. Skipetrov, S.D. Zakharov. Light-induced dynamic backscattering of laser pulses in randomly inhomogeneous media// J. Russian Laser Research 19 (2), 186-189, 1998.
28. M.A.Kazaryan, S.E. Skipetrov, S.D. Zakharov. Correlation spectroscopy for diagnostics of light-induced particle motion in concentrated suspensions// In Fourth International Conference on Correlation Optics, O.V. Angelsky, Ed., Proc. SPIE 3904, 423-428, 1999.
29. M.A.Kazaryan, S.M. Kazaryan, Yu.M. Mokrushin, O.V. Shakin. A high spatial resolution tunable laser system for photodynamic therapy.// Laser use in oncology, Proceedings of SPIE vol.4059, p.205-209, 2000.
30. A.M.Kazaryan, M.A.Kazaryan, S.V.Kruzhlov, Yu.M. Mokrushin, V.A. Parfenov. Tl:A120₃ laser pumped by a copper-vapor laser.// In New Trends in Atomic and Molecular Spectroscopy, Proceedings of SPIE vol.4060, p.218-222, 2000.
31. M.A.Kazaryan, N.P. Korotkov, N.A. Lyabin. Spatial and temporal characteristics of sealed-off copper-vapor laser radiation.// Laser Ablation III, Proceedings of SPIE vol.4065, p.719-727, 2000.
32. M.A.Kazaryan, Nguyen Cong Thanh, Yu.P. Timofejev, V.P. Gutan, N.P. Dackevich. Conversion and amplification of optical radiation by the interacting Er³⁺ ions.// Advancer in Natural Sciences, Hanoi, Vietnam, 2000 (in press).
33. V.V.Buchanov, M.M.Kalugin, M.A.Kazaryan, The possibilities of producing 10B boron isotopes with the method of selective photoionization// Laser Physics, 2001, Vol.11. N12. – P.1332-1335.
34. M.A.Kazaryan, S.E.Skipetrov. Diffusion-wave spectroscopy of light-induced fluxes.// Atmos. Oceanic Opt., May 2001, v.14, N 5, 344-350.
35. A.M.Prokhorov, V.V.Buchanov, M.A.Kazaryan, M.M.Kalugin. Evolution of limiting characteristics of laser separation of silicon isotopes.// J. of Russian Laser Research, 2002, v.23, N 6, 580–589.
36. Yu.V.Gulyaev, M.A.Kazaryan, Yu.M.Mokrushin, O.V.Shakin. Acousto-optic TV Projection Systems with Pulsed Lasers.// Laser Physics. – 2002. – Vol. 12, N 11, P.1368-1380.
37. M.A.Kazaryan, I.S.Kolokolov, N.A.Lyabin, V.S.Paramonov, S.A.Ugolnikov, A.D.Chursin. The Influence of Hydrogen on the Efficiency of a Copper-Vapor Laser with Sealed-off Active Elements.// Laser Physics, 2002, Vol. 12, N 10, P.1281-1285.
38. M.A.Kazaryan, N.A.Lyabin, V.M.Zharikov. Technological systems based on copper vapour laser designed for measurement and material processing.// SPIE 2002, v.4900, 1094-1098.
39. P.A. Bokhan, V.V. Buchanov, M.A.Kazaryan, D.E. Zakrevskii, M.M. Kalugin, N.V. Fateev. Current Trends in Laser Separation of Isotopes in Monatomic Vapors// Journal of Russian Laser Research 2003, vol.24, 2, pp. 159-167.
40. M.A.Kazaryan, N.A.Lyabin, N.A.Yudin. Prospects for further development of self-heated lasers on the self-contained transitions of a copper atom.// Journal of Russian Laser Research, V.25, N 3, pp 267-297 (2004).
41. Yu.G.Gradaboev, Yu.V.Gulyaev, M.A.Kazaryan, S.V.Kruzhlov, N.V.Lyabin, Yu.M.Mokrushin, O.V.Shakin. UV radiation source based on a copper vapor laser with acousto-optically controlled

- spectral and temporal parameters. //Quantum Electronics 34 (12), p. 1133-1137 (2004).
42. G.A.Azizdekyan, G.V.Grigoryan, M.A.Kazaryan, N.A.Lyabin, A.A.Melkonyan, Yu.M.Mokrushin, G.D.Movsisyan, R.Nalbandyan, V.S.Paramonov, L.A.Pogosyan, O.V.Shakin. Precision Laser Cutting of Thin-wall Objects. //Laser in engineering 16, pp39-50, 2006.
 43. V.I.Boiko, M.A.Kazaryan, I.V.Lomov, I.V.Shamanin. A nontraditional approach to the problem of complex processing of the thorium-containing nuclear raw material solutions.// ISJAE 5, 109, 2006.
 44. P.A. Bokhan, V.V. Buchanov, M.A.Kazaryan, M.M. Kalugin, N.V. Fateev, A.M. Prokhorov, D.E. Zakrevskii. Laser Isotope Separation in Atomic Vapors.// WILEY-VCH Verlag GmbH and Co. KGaA, Weinheim, 2006, 185 pages.
 45. G.V.Grigoryan, D.V.Dementeva, M.A.Kazaryan, V.I.Sachkov, O.S.Andrienko, T.D.Malinovskaya, S.T.Kabaev. Laser-induced carbon isotopes separation in condition of photocatalyze CO oxidation on the surface of nanosemiconductors //New and Old Concepts in Physics.
 46. I.V.Shamanin, M.A.Kazaryan, N.N.Melnik, I.V.Lomov, S.Yu.Dolgopolov, A.N.Lobanov. Oscillations of polarized charge in solution of salt in polar dielectric: possible application in element and isotope separation in biology and nanotechnology// Springer, 2008.
 47. V.A.Burmakin, M.A.Kazaryan, V.I.Bimkin, D.S.Glikin, V.A.Gorbarenko, N.V.Grevtsev, A.A.Dorozhkin, V.A.Evdokimov, K.I.Isaev, G.G.Petrash, K.I.Zemskov. Procède de traitement, d'enregistrement et d'observation d'un objet Brevet D'Invention N 8106315.
 48. V.A.Burmakin, V.I. Bylkin, A.A.Dorozkin, N.V.Grevcev, V.A.Gorbarenko, V.A.Evdokimov, M.A.Kazaryan, K.I.Zemskov, A.A.Isaev, V.M.Matveev, L.S.Moskva, N.A.Onukhov, G.G.Petrash, V.V.Savin, A.S.Skripnichenko. Verfahren zur Behandlung bei gleichzeitiger Beobachtung and Registrierung eines Objektes mit Hilfe eines Lasermediums und Vorrichtung zur Durchführung des Verfahrens Patents-chrift CH 658753 A5.
 49. V.A.Burmakin, V.I. Bylkin, A.A.Dorozkin, N.V.Grevcev, V.A.Gorbarenko, V.A.Evdokimov, M.A.Kazaryan, K.I.Zemskov, A.A.Isaev, V.M.Matveev, L.S.Moskva, N.A.Onukhov, G.G.Petrash, V.V.Savin, A.S.Skripnichenko Verfahren zur Behandlung, Registrierung und Beobachtung von Objekten mittels eines hochststrahlenden Lasermediums. Patents-chrift DE 3050326 C2.