CURRICULUM VITAE

Name: **Bobomurat AHMEDOV**

Short Description:

Professor Bobomurat Ahmedov is the Head of Theoretical Astrophysics Department at the Ulugh Beg Astronomical Institute (Tashkent) of Uzbekistan Academy of Sciences, Professor of the National University of Uzbekistan (NUUz) and Editor-in-Chief of Uzbek Journal of Physics.

Bobomurat J. Ahmedov was born on 04 June 1963 in Samarkand, Uzbekistan. He has graduated from the Samarkand State University (1985) with an honour MSc diploma. Ahmedov has got PhD degree, in 1993, from the Institute of Nuclear Physics, Tashkent and the highest Doctor of Sciences DSc habilitation degree in physics and mathematics, 2001, from the National University of Uzbekistan (NUUz), Tashkent. In November 2018 and in November 2020 Ahmedov has been elected as Fellow of The World Academy of Sciences (TWAS) in Trieste and Fellow of Islamic Academy of Sciences (FIAS), respectively.

Prof. Bobomurat Ahmedov is an internationally renowned expert in general relativity and gravitation. At present he is holding a position of Projects Leader and Head of Theoretical Astrophysics Department in the Ulugh Beg Astronomical Institute in Tashkent, position of Full Professor (part time) at the Uzbekistan National University in Tashkent and position of Full Professor (part time) at the Tashkent Institute of Irrigation and Agricultural Mechanization Engineers. He was organizer of International conferences including Int. Symposium on Experimental Gravitation held in Samarkand, Uzbekistan, 1999. He is delivering lectures to graduate students at the Samarkand State University during the years 1993 - 2001 and at the National University of Uzbekistan, Tashkent from year 2001. Ahmedov is coordinator of AS-ICTP Network (NT-01) on Theoretical Astrophysics, Gravitation and Cosmology between India, Kazakhstan, Thailand and Uzbekistan (IKTUN, the previous NET-76 project). He is a member of Scientific Councils at the Ulugh Beg Astronomical Institute and at the Institute of Nuclear Physics, Tashkent.

He was Vice-Chairman of Scientific Council D.067.02.13 awarding PhD/DSc degrees in Astrophysics and Radioastronomy & Theoretical Physics at the National University of Uzbekistan (January 2009 to 2013) and is currently Vice-Chairman of Scientific Council DSc.03/30.12.2019. FM.01.09 awarding PhD/DSc degrees in Theoretical Physics at the National University of Uzbekistan (starting January 2021). He is also Member of Scientific Council 02/30.12.2019.FM.15.01 awarding PhD/DSc degrees in Astronomy at the Ulugh Beg Astronomical Institute (starting December 2020). He was a member of the Expert Group of the Supreme Attestation Committee under Cabinet of Ministers of the Republic of Uzbekistan (January 2014 - October 2020) and Member of Scientific and Technical Council in Physics & Mathematics of Uzbekistan Ministry of Innovative Development (January 2017 - April 2020). He is Editor-in-Chief of Uzbek Journal of Physics (starting 2020). He is also editor of Arabian Journal of Mathematics by Springer (starting 2018). He is member of reiewer board of the Universe by MDPI (starting 2020).

Ahmedov is an exceptionally prolific author: since 1993, he has published over 130 scientific papers in top journals including the Monthly Not. R. Astron. Soc. (Impact Factor 4.961), A&A (5.014), ApJ (5.533), Phys. Rev. D. (4.506), European Physical Journal C (5.331), etc. h-index of his publications is 30 (35) and number of citations is ~3000 (~4200) in Scopus/Web of Science (Google Scholar). Ahmedov is the referee of the following journals: Physical Review D, Physical Review Letters, European Journal of Physics, European Physical Journal C, Monthly Notices of the Royal Astronomical Society, General Relativity and Gravitation, International Journal of Theoretical Physics, International Journal of Modern Physics D, Physics Letters A, Physics Letters A, UNIVERSE by MDPI, Modern Physics Letters A, Physica Scripta, Classical and Quantum Gravity, Journal of Physics, Journal of Astrophysics, Plasma Phys. Control. Fusion, Pramana, Advances in Space Research, Annals of Physics, Arabian Journal of Mathematics, Canadian Journal of Physics etc

Ahmedov was a visiting professor and invited researcher at many universities and research centres in India, Germany, Italy, Czech Republic, China, Kazakhstan, Russia and Turkey. He is a frequent invited speaker at workshops and seminars abroad, and he collaborates closely with some leading researchers across Asia (China, India, Kazakhstan) and Europe (Czech Republic, Germany, Italy, Russia).

He is known for his important results mainly obtained in the international collaboration:and has long-standing experience in applying general relativity to astrophysical problems and in the use of state of the

art numerical and analytical techniques in studying the electrodynamics of relativistic stars and black holes. In particular, he has developed the basic formalism to study the influence of strongly curved space-time on the properties of interior and exterior electromagnetic fields of magnetized relativistic stars and black holes. Force-free magnetosphere of oscillating and rotating magnetized neutron stars has been developed by him. A qualitative model for the explanation of the phenomenology of intermittent pulsars in terms of stellar oscillations that are periodically excited by star glitches has been also proposed. The conditions for radio emission in rotating and oscillating magnetars, by focusing on the main physical processes determining when the magnetars may be radio-loud or radio-quiet are studied by Ahmedov. Present observations showing a close connection between the burst activity of magnetars and the generation of the radio emission in the magnetar magnetosphere are naturally accounted. A general formalism to describe the black hole shadow as an arbitrary polar curve expressed in terms of a Legendre expansion has been developed and it has been shown that the new formalism provides an accurate and robust description of noisy observational data, with smaller error variances when compared to previous measurements of the distortion. Gravitational lensing by the various compact objects has been extensively studied.

Since observations of gravitational waves from the coalescences of binary systems of compact objects by Advanced LIGO opened a new window to the strong-field regime of general relativity, Ahmedov has also paid attention to test the dynamical, nonlinear regime of the alternative theory of gravity with gravitational waves. In particular,quasinormal modes which dominate the signal detected by the Earth based gravitational wave detectors (LIGO, VIRGO, etc.) and gravitational instability of polytropic spheres containing region of trapped null geodesics as a tool of possible explanation of formation of the central supermassive black holes in galactic halos have been studied.

Due to the discovery of gravitational waves by LIGO-VIRGO collaboration Ahmedov has studied the gravitational waves from coalescing black holes in inspiral stage and quasinormal modes from the black hole mergers. His other current important research is related to the description of shadow of various black holes and gravitational lensing from black holes.This study is very important with the recent detection of M87 supermassive black hole shadow in submillimeter radio diaposon by the Event Horizon Telescope using the Very Long Baseline Interferometry. Experimental tests of general relativity, general relativistic EM effects and fields for pulsars and magnetized rotating and oscillating neutron starsare also in the scope of his scientific interests. His

present research is also devoted to problems related tostudying the electromagnetic and astrophysical processes around rotating oscillating neutron and strange stars and in X-ray binaries including highly magnetized neutron star. He is also conducting research on VLF (very low frequency) EM wave propagation in Earth ionosphere and study of the ionospheric disturbances caused by various atmospheric, terrestrial and extraterrestrial phenomena.

Bobomurat Ahmedov is among the leading scientists in the field of relativistic astrophysics, general relativity and gravitation. He is an accomplished theoretical physicist trained in the classical tradidtional scientific school and he together with his students have obtained several interesting results in this frontier area of relativistic astrophysics. He is the leader of the theoretical astrophysics group specialized in general relativity and relativistic astrophysics at the Ulugh Beg Astronomical Institute in Tashkent. Especially valuable are his contributions to our understanding what happens in the close surrounding of rotating astrophysical and supermassive black holes and oscillating and rotating strongly magnetized neutron stars. He is also well known for his work on energetics of black holes in magnetic field. He has a strong record of first class publications in highly ranked journals and a well established cooperation with leading European scientists (e.g. L. Rezzolla, Z. Stuchlik), leading Asian scientists (e.g. N. Dadhich, P. Joshi, C. Bambi), and leading scientific and educational institutions (e.g. Fudan University, Shanghai, China; ICTP, SISSA, Trieste, ICRA, Pescara, Italy; Max-Planck-Institute, Golm, Frankfurt University, Germany; IUCAA, Pune, TIFR, Mumbai, India, Stanford University, USA) etc.

Bobomurat Ahmedov is awarded with "The Researcher of the Year 2018" in Uzbekistan, by Scopus; “Science Leader” Web of Science award – 2017 by the Clarivate Analytics as the highly cited author in the whole country (Uzbekistan) with 77 papers published in the refereed journals during the last 10 years, with Award of The World Academy of Sciences for Young Scientists in Physics in Uzbekistan in Year 2001; Uzbekistan State Order “Glory of Labor”, 2012; Award of Uzbekistan Acad. Sci. for Young Scientists in Physics,1996; International Science Foundation Award, 1994; CNR-NATO Grant, 2004; NATO Reintegration Grant, 2004-2007; AS-ICTP Regular Associate, Trieste, Italy, 2005-2010; the Volkswagen Stiftung Grant, Germany, 2013-2016; DAAD (Germany) Grants 2017, 2012, 2009, 2006; UNESCO-TWAS Regular Associate at the TIFR (Mumbai, India), 2012-2014, at the IUCAA (Pune, India), 2010-2012 and 2002-2004; Fudan Fellowship, China, 2017, 2019; Coordinator of AS-ICTP Affiliated Center, Network and Project (AC-83, NT-01, PRJ-29). During the last twenty five years he

has lead several dozen local and international scientific projects from the ICTP, TWAS, CNR (Italy), DAAD, Volkswagen, NATO, Erasmus+ etc.

In Uzbekistan Bobomurat Ahmedov is one of the scientists who provides the students with a high quality supervision of Bachelor diploma works, Master and PhD dissertations at the National University of Uzbekistan and the Ulugh Beg Astronomical Institute in Tashkent.

Impact of the research activity conducted by Ahmedov in Uzbekistan is very important. First, he is a leader of single research group for the whole Uzbekistan (with ~35 millions inhabitants) which is specialized in relativistic astrophysics and his experience and efforts are important for the further development of this subject in the region especially within the OEA-ICTP Network NT-01 coordinated by him. Second, the research group headed by Ahmedov has close relations with the National University of Uzbekistan in Tashkent and the Samarkand State University and graduate students from these universities are involved in research and educational programs in the relativistic astrophysics. Third, he is oftenly visiting the local scientific institutions and universities and make presentations on frontiers of general relativity and relativistic astrophysics. Fourth, graduate and PhD students from the local universities benefit from working with him. Almost majority part of the scientific results of Ahmedov have been obtained while his various scientific trips abroad because production of the high level scientific results requires the strong scientific collaboration established by him.

Last but not least we have to mention the important role that Prof. Ahmedov plays for the education of physicists in Uzbekistan. Some of his PhD students provide meanwhile valuable contributions to our understanding of general relativity and relativistic astrophysics.

CURRICULUM VITAE

A- PERSONAL DETAILS OF NOMINEE

Surname or Family Name (s): **AHMEDOV**

Forename (s): **BOBOMURAT** Title (Dr, Prof., ...): **Professor**

Country of Origin (**expatriate scientists only**):.....…….

Country of Residence: **UZBEKISTAN**

Nationality: **UZBEKISTAN**

Place of Birth: **Samarkand** Date of Birth: **04 June, 1963**

Marital Status: **Married**

Present Position: **Head, Theoretical Astrophysics Department, Ulugh Beg Astronomical Institute, Tashkent**

Full Professor of Astronomy & Theoretical Physics

Languages: **English, Russian, Uzbek**

Work Address: **Ulugh Beg Astronomical Institute (AI), Uzbekistan Academy of Sciences, Astronomicheskaya 33, Tashkent 100052, Uzbekistan**

Telephone (s) : **+998712358102 (o)**

Mobile: **+998977088068 (m)** Fax: **+998-71-2344867**

E-mail: **ahmedov@astrin.uz or bahmedov@yahoo.com**
Web Site Address: **www.astrin.uz**

Home Address: **Center-5, 39/43, Tashkent 100017, Uzbekistan**

Telephone: **+998712355786 (h)** Fax: **+998-71-2344867**

Countries visited (officially, study-tours, missions, conferences, privately, etc.):

China, Germany, Italy, France, Austria, Czech Republic, Poland, Turkey, Israel, Latvia, Russia, Belarus, Ukraine, Moldova, Armenia, Kazakhstan, Tadjikistan, Turkmenistan, Tunis, India, Pakistan, Vietnam, South Korea all with the scientific trips and conference participation.

B- ACADEMIC BACKGROUND

Nominees should give names of scientists with whom they have worked.

	Degree	University/Institute	Field	Year
a.	M.Sc.	Physics Department Samarkand State University University Avenue 15 Samarkand 703004, Uzbekistan	Theoretical Physics	1985
b.	Ph.D.	Institute of Nuclear Physics Uzbekistan Academy of Sciences Ulughbek, Tashkent 100214 Uzbekistan		1993
c. (Highest Degree)	Dr.Sc.	Physics Faculty National University of Uzbekistan Tashkent 100174, Uzbekistan		2001

BB- OTHER ACADEMIC DETAILS

LIST FOREIGN RESEARCH INSTITUTES VISITED FOR RESEARCH ACTIVITY:

Host Institute	Duration of visit	Purpose of visit
AS-ICTP Trieste, Italy	few months each visit in **1995, 1996, 1997, 1998, 1999, 2001, 2002, 2005, 2006, 2007, 2008,2009,2014**	visitor/ Regular associate
ICRA, Rome Pescara	several days each visit in **1998, 1999, 2000, 2001, 2002, 2003, 2005,2007,2008,2009**	visitor
SISSA, Trieste	few weeks/months each visit in **2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007,2008,2009**	visitor
Nazarbayev University **Astana, Kazakhstan**	few weeks each visit in **2016, 2017, 2018, 2019, 2020**	visitor
Fudan University Shangha, China	one month each visit in **2016, 2019**	visitor
MPI fur Gravitations Physik, Golm, Germany	few months/weeks each visit in 1999, 2006, 2007, 2008, 2009,2010,2011, 2012, 2013	visitor
IIT, Kharagpur, India	two weeks in **2000**	visitor

RCMPS, Bangladesh Chittagong University	two weeks in 1999	visitor
IUCAA, **Pune, India** **in** 2002, 2004, 2008,2010,2011,2012,2013,2014,2015,2016,2017,2018,2019	**few months each visit**	visitor
Silesian University **In Opava**, Czech Republic	one week in **2009, 2012,2013,2014,2015,2016,2017,2018,2019**	visitor
Goethe University **In Frankfurt**, Germany	few months in **2013,2014,2015,2016,2017,2018, 2019**	visitor
ZARM, Bremen Germany	one week in **2006,2009,2012**	visitor
DLR, Berlin Germany	one week in **2007**	visitor
Akdeniz University Turkey	one month in **2011, 2012**	visitor
TIFR, Mumbai India	few weeks in **2011, 2012,2013,2015**	visitor

C- **PROFESSIONAL EXPERIENCE** (positions held and nature of work)

a. Head, Theoretical Astrophysics Department, Ulugh Beg Astronomical Institute (AI), Uzbekistan Academy of Sciences, Tashkent from year 2016 till now **(Research position)**

b. Full Professor of Astronomy & Theoretical Physics, National University of Uzbekistan, Tashkent from year 2001 till now **(Teaching position: part time)**

c. Head, Theoretical Astrophysics Sector, Institute of Nuclear Physics, Uzbekistan Academy of Sciences, Tashkent during years 2001 - 2016 **(Research position)**

d. Principal Scientific Researcher, Institute of Nuclear Physics, Uzbekistan Academy of Sciences, Tashkent during years 1996 - 2001 **(Research position)**

e. Senior Scientific Researcher, Institute of Nuclear Physics, Uzbekistan Academy of Sciences, Tashkent during years 1994 - 1996 **(Research position)**

f. Scientific Researcher, Institute of Nuclear Physics, Uzbekistan Academy of Sciences, Tashkent during years 1990 - 1994 **(Research position)**

g. Junior Scientific Researcher, Institute of Nuclear Physics, Uzbekistan Academy of Sciences, Tashkent during years 1988 - 1990 **(Research position)**

h. Full Professor of Physics, Tashkent Institute of Irrigation and Agricultural Mechanization Engineers from year 2020 till now **(Teaching position: part time)**

i. Associate Professor of Theoretical Physics, Samarkand State University during years 1993 - 2001 **(Teaching position: part time)**

j. **Coordinator** of AS-ICTP Network (NT-01) on Theoretical Astrophysics, Gravitation and Cosmology between India, Kazakhstan, Thailand and Uzbekistan, Affiliated Center ICAC-83, Project PRJ-29 during years 2001 - 2019.

j. Editor of Arabian Journal of Mathematics, Springer since 2018

k. Referee of the following journals:

Physical Review D, Physical Review Letters, European Journal of Physics, European Physical Journal C, Monthly Notices of the Royal Astronomical Society, Universe by MDPI, General Relativity and Gravitation, International Journal of Theoretical Physics, International Journal of Modern Physics D, Physics Letters A, Physics Letters B, Modern Physics Letters A, Physica Scripta, Classical and Quantum Gravity, Journal of Physics, Journal of Astrophysics, Plasma Phys. Control. Fusion, Pramana, Advances in Space Research, Annals of Physics, Arabian Journal of Mathematics, Canadian Journal of Physics, Chinese Physics C etc

l. Expertise

Expert of the Czech Science Foundation**, GACR**
Expert of **Agence Nationale de la Recherche, ANR, France**
Expert of Foundation at **King Fahd University of Petroleum and Minerals Dhahran 31261, Saudi Arabia**

Chairman of the State Examination Committee awarding BSc/MSc degrees in Astronomy, Physics Teaching at the National University of Uzbekistan (**27 May – 28 June 2019**).

Vice-Chairman of the State Examination Committee awarding BSc/MSc degrees in Physics, Astronomy, Theoretical Physics, Nuclear Physics and Atmosphere Physics at the National University of Uzbekistan (**June 2017**).

Chairman of the State Examination Committee awarding BSc/MSc degrees in Physics, Astronomy, Theoretical Physics, Nuclear Physics and Atmosphere Physics at the National University of Uzbekistan (**29 May – 21 June 2013**).

k. Research projects leaded

Leader of 2 Years **Uzbekistan-Belorussian** Research Project *" Modelling of compact astrophysical objects and correlation of their observational characteristics with parameters of the telescope RT-70 and Russian orbital telescope Gamma-400"* from the Uzbekistan Ministry of Innovational Development, Tashkent, Uzbekistan (**1 May 2019 - 30 April 2021**).

Leader of 4 Years Research Project *"Astrophysical Processes in Stationary and Dynamic Relativistic Gravitation Objects"* from the Uzbekistan Academy of Sciences, **Grant VA-FA-F-2-008**, Tashkent, Uzbekistan (**1 January 2017 - 31 December 2020**).

Consultant of Project B191039 "Gravitational, Scalar, Electromagnetic Fields and Particle Motion Around Compact Objects" from King Fahd University of Petroleum and Minerals, Saudi Arabia (**01 April 2020 - 30 September 2021**).

Co-Leader of 2 Years Erasmus+ ICM Project between Silesian University in Opava and National University of Uzbekistan (**01 August 2017 - 01 August 2019**).

Leader of 5 Years Research Project *"Gravitational and Electromagnetic Processes in Relativistic Astrophysics and Cosmology"* from the Uzbekistan Academy of Sciences, **Grant F2-FA-F113**, Tashkent, Uzbekistan (**1 January 2012 - 31 December 2016**).

Co-Leader of 5 Years Research Project *"Physics of Gravitational Lenses, Compact Astrophysical Objects and Nonstationary Disc Systems"* from the Uzbekistan Academy of Sciences, **Grant F2-FA-**

0-96611, Tashkent, Uzbekistan (**1 January 2012 - 31 December 2016**).

Leader of Research Project *"Mathematical Modelling of Multiparticle High Energy Processes"* from the Uzbekistan Ministry of Science and Technology, Tashkent, Uzbekistan (**1996 - 1999**).

Leader of 4.5 Years Research Project *"Study of the Equations of Gravitation and Electrodynamics in Relativistic Astrophysics and Cosmology"* from the Uzbekistan Center of Science and Technology, **Grant F2.1.09**, Tashkent, Uzbekistan (**1 January 2003 - 30 June 2007**).

Co-Leader of 4.5 Years Research Project *"Study of the Dynamics of Gravitating Systems and Electromagnetic Processes in Vicinity of Compact Objects"* from the Uzbekistan Center of Science and Technology, **Grant F2.2.06**, Tashkent, Uzbekistan (**1 January 2003 - 30 June 2007**).

Leader of 2 Years Research Project *"Vacuum Solutions to the Equations of Einstein and Maxwell in Axial Symmetry"* from the Foundation for Fundamental Studies of the Uzbekistan Academy of Sciences, **Grant 2-04**, Tashkent, Uzbekistan (**1 January 2004 - 31 December 2005**).

Recepient of Individual CNR-NATO **Grant** (ranked at the 1st place with 29/30 points), **2004**.

Co-Leader of NATO Reintegration **Grant EAP.RIG.981259** *"Electromagnetic Fields of Magnetized Compact Stars in General Relativity"*, **2004-2007**.

Leader of 3 Years Research Project *"Development of Methods for Extraction of Data for Earthquake Prediction and Prognosis from Gravitational and Astrophysical Measurements"* from the Uzbekistan Center of Science and Technology, **Grant A13-226**, Tashkent, Uzbekistan (**1 January 2006 - 31 December 2008**).

Leader of 2 Years Research Project *"General Relativistic Effects in Models of Relativistic Stars with Cosmological Term and Branes"* from the Foundation for Fundamental Studies of the Uzbekistan Academy of Sciences, **Grant 1-06**, Tashkent, Uzbekistan (**1 January 2006 - 31 December 2007**).

Co-Leader of 3 Years Research Project *"Electrodynamics of magnetized rotating and oscillating astrophysical compact objects"* from the Volkswagen Stiftung, **Grant No. 86866**, Germany (**1 February 2013 - 1 September 2016**)

Leader of 4.5 Years Research Project *"Study of the Equations of Electromagnetic and Gravitational Fields in Relativistic Astrophysics and Cosmology"* from the Uzbekistan Academy of Sciences, **Grant FA-F2-F079**, Tashkent, Uzbekistan (**1 July 2007 - 31 December 2011**).

Co-Leader of 4.5 Years Research Project *"Study of Gravitational Lenses, Formed Galaxies and Generalized Gravitational Models"* from the Uzbekistan Academy of Sciences, **Grant FA-F2-F061**, Tashkent, Uzbekistan (**1 July 2007 - 31 December 2011**).

Co-Leader of 3 Years Research Project *"Monitoring of Very Low Frequency Signals in Earth Ionosphere for Prognosis of Dangerous Tectonic Phenomena"* from the Uzbekistan Academy of Sciences, **Grant FA-A17-077**, Tashkent, Uzbekistan (**1 January 2009 - 31 December 2011**).

Leader of 2 Years Research Project *"General Relativistic Effects in Axial Symmetric Spacetimes"* from the Foundation for Fundamental Studies of the Uzbekistan Academy of Sciences, **Grant #5-08**, Tashkent, Uzbekistan (**1 January 2008 - 31 December 2009**).

Recepient of Individual DAAD (Germany) Grant A/06/33126, 2006

Recepient of Individual DAAD (Germany) Grant A/09/04164, 2009

Recepient of Individual DAAD (Germany) Grant A/12/05197, 2012

Recepient of Individual DAAD (Germany) Grant 91679468, 2017

International Science Foundation (ISF) **Grant**, **1994**.

CC- MAJOR CAREER OBJECTIVES

a. **Research** of Ahmedov is devoted to derivation of solutions of electromagnetic and gravitational field equations, study of electromagnetic field (EMF), particle motion and related astrophysical processes near black holes taking into account the strong background gravitational field. New tests of the General Relativity and constraints on parameters of other gravity theories in the strong gravitational regime are expected to be obtained through study of the black hole properties as shadow, most inner stable circular orbits, electromagnetic & scalar fields. Main focus of the project is to obtain the EMF structure, particle motion and light rays trajectory/photon sphere/shadow close to the black holes when the plasma environment and EMFs are present, in addition to new solutions of gravitational and EMF equations.

b. **Teaching Experience of Ahmedov**

Winter-spring term 1994: Course in Quantum Mechanics (92 lecture hours) for the 3rd year undergraduate students, Chair of Theoretical Physics, Faculty of Physics, Samarkand State University, Uzbekistan.

Winter-spring term 1994: Course in Electrodynamics of Continuous Media (69 lecture hours) for the 3rd year undergraduate students (Bachelor Course), Chair of Theoretical Physics, Faculty of Physics, Samarkand State University, Uzbekistan.

Winter-spring term 1995: Course in Statistical Physics (90 lecture hours) for the 4th year undergraduate students, Chair of Theoretical Physics, Faculty of Physics, Samarkand State University, Uzbekistan.

Winter-spring term 1995: Course in Electrodynamics of Continuous Media (69 lecture hours) for the 3rd year undergraduate students (Bachelor Course), Chair of Theoretical Physics, Faculty of Physics, Samarkand State University, Uzbekistan.

Winter-spring term 1996: Course in Electrodynamics of Continuous Media (69 lecture hours) for the 3rd year undergraduate students (Bachelor Course), Chair of Theoretical Physics, Faculty of Physics, Samarkand State University, Uzbekistan.

Winter-spring term 1997: Course in General Relativity and Gravitation (60 lecture hours) for the 4th year undergraduate students (Bachelor Course), Chair of Theoretical Physics, Faculty of Physics, Samarkand State University, Uzbekistan.

Winter-spring term 1998: Course in Electrodynamics of Continuous Media (69 lecture hours) for the 3rd year undergraduate students (Bachelor Course), Chair of Theoretical Physics, Faculty of Physics, Samarkand State University, Uzbekistan.

Winter-spring term 1999: Course in Electrodynamics of Continuous Media (69 lecture hours) for the 3rd year undergraduate students (Bachelor Course), Chair of Theoretical Physics, Faculty of Physics, Samarkand State University, Uzbekistan.

Winter-spring term 2000: Course in Electrodynamics of Continuous Media (69 lecture hours) for the 3rd year undergraduate students (Bachelor Course), Chair of Theoretical Physics, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Winter-spring term 2001: Course in General Relativity and Gravitation (60 lecture hours) for the 4th year undergraduate students (Bachelor Course), Chair of Theoretical Physics, Faculty of Physics, Samarkand State University, Uzbekistan.

Winter-spring term 2002: Course in Electrodynamics of Continuous Media (69 lecture hours) for the 3rd year undergraduate students (Bachelor Course), Chair of Theoretical Physics, Faculty of Physics, Samarkand State University, Uzbekistan.

Fall term 2003: Course in Plasma Astrophysics (92 lecture hours) for the 1st year graduate students (Master Course), Chair of Astronomy, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Fall term 2003: Course in Quasars and Gravitational Lensing (55 lecture hours) for the 1st year graduate students (Master Course), Chair of Astronomy, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Fall term 2003: Course in Cosmogony: Origin of planets, Sun and stars (96 lecture hours) for the 1st year graduate students (Master Course), Chair of Astronomy, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Winter-spring term 2004: Course in General Relativity and Gravitation (Part I) – an introductionary course (50 lecture hours) for the 3rd year undergraduate students (Bachelor Course), Chair of Theoretical Physics, Faculty of Physics, Tashkent State University, Tashkent, Uzbekistan.

Winter-spring term 2004: Course in Electrodynamics of Continuous Media (69 lecture hours) for the 3rd year undergraduate students (Bachelor Course), Chair of Theoretical Physics, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Winter-spring term 2004: Course in Theoretical Mechanics (148 lecture hours) for the 2nd year undergraduate students (Bachelor Course), Chair of Theoretical Physics, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Fall term 2004: Course in Electromagnetic Field Theory (60 lecture hours) for the 3rd year undergraduate students (Bachelor Course), Chair of Theoretical Physics, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Fall term 2004: Course in Plasma Astrophysics (92 lecture hours) for the 1st year graduate students (Master Course), Chair of Astronomy, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Winter-spring term 2005: Course in Electrodynamics of Continuous Media (69 lecture hours) for the 3rd year undergraduate students (Bachelor Course), Chair of Theoretical Physics, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Winter-spring term 2005: Course in Cosmogony: Origin of planets, Sun and stars (96 lecture hours) for the 1st year graduate students (Master Course), Chair of Astronomy, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Winter-spring term 2005: Course in Interstellar Medium (32 lecture hours) for the 1st year graduate students (Master Course), Chair of Astronomy, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Winter-spring term 2005: Course in General Relativity and Gravitation (69 lecture hours) for the 1st year graduate students (Master Course), Chair of Theoretical Physics, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Fall term 2005: Course in Electromagnetic Field Theory (60 lecture hours) for the 3rd year undergraduate students (Bachelor Course), Chair of Theoretical Physics, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Winter-spring term 2006: Course in Electrodynamics of Continuous Media (69 lecture hours) for the 3rd year undergraduate students (Bachelor Course), Chair of Theoretical Physics, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Winter-spring term 2006: Course in General Relativity and Gravitation (69 lecture hours) for the 1st year graduate students (Master Course), Chair of Theoretical Physics, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Fall term 2006: Course in Electromagnetic Field Theory (69 lecture hours) for the 3rd year undergraduate students (Bachelor Course), Chair of Theoretical Physics, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Winter-spring term 2007: Course in General Relativity and Gravitation (69 lecture hours) for the 1st year graduate students (Master Course), Chair of Theoretical Physics, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Winter-spring term 2007: Course in Electrodynamics of Continuous Media (69 lecture hours) for the 3rd year undergraduate students (Bachelor Course), Chair of Theoretical Physics, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Fall term 2007: Course in Electromagnetic Field Theory (63 lecture hours) for the 3rd year undergraduate students (Bachelor Course), Chair of Theoretical Physics, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Fall term 2007: Course in Cosmogony: Star Formation Regions and Physics of Young Stars (120 lecture hours) for the 1st year graduate

students (Master Course), Chair of Astronomy, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Fall term 2007: Course in Interstellar Medium (48 lecture hours) for the 2nd year graduate students (Master Course), Chair of Astronomy, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Winter-spring term 2008: Course in General Relativity and Gravitation (65 lecture hours) for the 1st year graduate students (Master Course), Chair of Theoretical Physics, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Winter-spring term 2008: Course in Electrodynamics of Continuous Media (61 lecture hours) for the 3rd year undergraduate students (Bachelor Course), Chair of Theoretical Physics, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Winter-spring term 2008: Course in Statistical Physics and Thermodynamics (66 lecture hours) for the 3rd year undergraduate students (Bachelor Course), Chair of Theoretical Physics, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Winter-spring term 2008: Course in Nonstationary Stars (56 lecture hours) for the 4th year undergraduate students (Bachelor Course), Chair of Theoretical Physics, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Fall term 2008: Course in Statistical Physics and Thermodynamics, I part (60 lecture hours) for the 4^{th} year undergraduate students (Bachelor Course), Chair of Theoretical Physics, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Winter-spring term 2009: Course in Statistical Physics and Thermodynamics, II part (66 lecture hours) for the 4^{th} year undergraduate students (Bachelor Course), Chair of Theoretical Physics, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Winter-spring term 2009: Course in General Relativity and Gravitation (50 lecture hours) for the 1st year graduate students (Master Course), Chair of Theoretical Physics, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Winter-spring term 2009: Course in Statistical Physics and Thermodynamics (66 lecture hours) for the 3rd year undergraduate students (Bachelor Course), Chair of Theoretical Physics, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Fall term 2009: Course in Statistical Physics and Thermodynamics, I part (60 lecture hours) for the 4th year undergraduate students (Bachelor Course), Chair of Theoretical Physics, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Fall term 2009: Course in General Relativity and Cosmology (75 lecture hours) for the 1th year graduate students (Master Course), Chair of Astronomy, Faculty of Physics and Mathematics, Tashkent Pedagogical University, Uzbekistan.

Fall term 2009: Course in Basics of Cosmic Electrodynamics, I part (83 lecture hours) for the 1th year graduate students (Master Course), Chair of Astronomy, Faculty of Physics and Mathematics, Tashkent Pedagogical University, Uzbekistan.

Winter-spring term 2010: Course in Statistical Physics and Thermodynamics, II part (66 lecture hours) for the 4th year undergraduate students (Bachelor Course), Chair of Theoretical Physics, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Winter-spring term 2010: Course in General Relativity and Gravitation (50 lecture hours) for the 1st year graduate students (Master Course), Chair of Theoretical Physics, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Winter-spring term 2010: Course in Basics of Cosmic Electrodynamics, II part (84 lecture hours) for the 1th year graduate students (Master Course), Chair of Astronomy, Faculty of Physics and Mathematics, Tashkent Pedagogical University, Uzbekistan.

Fall term 2010: Course in Statistical Physics and Thermodynamics, I part (60 lecture hours) for the 4th year undergraduate students (Bachelor Course), Chair of Theoretical Physics, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Winter-spring term 2011: Course in Statistical Physics and Thermodynamics, II part (66 lecture hours) for the 4th year undergraduate students (Bachelor Course), Chair of Theoretical Physics, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Winter-spring term 2011: Course in General Relativity and Gravitation (50 lecture hours) for the 1st year graduate students (Master Course), Chair of Theoretical Physics, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Winter-spring term 2011: Course in Relativistic Astrophysics and Cosmology (50 lecture hours) for the 2nd year graduate students

(Master Course), Chair of Theoretical Physics, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Winter-spring term 2012: Course in Statistical Physics and Thermodynamics for Astronomers, (60 lecture hours) for the 4th year undergraduate students (Bachelor Course), Chair of Theoretical Physics, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Winter-spring term 2012: Course in General Relativity and Gravitation (60 lecture hours) for the 1st year graduate students (Master Course), Chair of Theoretical Physics, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Winter-spring term 2012: Course in Relativistic Astrophysics and Cosmology (50 lecture hours) for the 2nd year graduate students (Master Course), Chair of Theoretical Physics, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Fall term 2015: Course in Methods of Mathematical Physics, (80 lecture hours) for the 3rd year undergraduate students (Bachelor Course), Chair of Theoretical Physics, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Winter-spring term 2016: Course in General Relativity and Gravitation (60 lecture hours) for the 1st year graduate students (Master Course), Chair of Theoretical Physics, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Fall term 2016: Course in Methods of Mathematical Physics, (80 lecture hours) for the 3rd year undergraduate students (Bachelor Course), Chair of Theoretical Physics, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Fall term 2016: Course in Relativistic Astrophysics and Cosmology (50 lecture hours) for the 2nd year graduate students (Master Course), Chair of Theoretical Physics, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Fall term 2017: Course in Methods of Mathematical Physics, (80 lecture hours) for the 3rd year undergraduate students (Bachelor Course), Chair of Theoretical Physics, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Fall term 2017: Course in Relativistic Astrophysics and Cosmology (50 lecture hours) for the 2nd year graduate students (Master Course), Chair of Theoretical Physics, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Fall term 2017: Course in Nuclear Astrophysics (50 lecture hours) for the 2nd year graduate students (Master Course), Chair of Nuclear Physics, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Winter-spring term 2018: Course in Methods of Mathematical Physics, (80 lecture hours) for the 2nd year undergraduate students (Bachelor Course), Chair of Theoretical Physics, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Fall term 2018: Course in Relativistic Astrophysics and Gravitation (80 lecture hours) for the 1st year graduate students (Master Course), Chair of Theoretical Physics, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Fall term 2018: Course in Nuclear Astrophysics (80 lecture hours) for the 2nd year graduate students (Master Course), Chair of Nuclear Physics, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Fall term 2018: Course in Nuclear Astrophysics (80 lecture hours) for the 1st year graduate students (Master Course), Chair of Nuclear Physics, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Fall term 2019: Course in Methods of Mathematical Physics, (80 lecture hours) for the 3rd year undergraduate students (Bachelor Course), Chair of Theoretical Physics, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Fall term 2019: Course in General Relativity and Gravitation (60 lecture hours) for the 1st year graduate students (Master Course), Chair of Theoretical Physics, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Winter-spring term 2020: Course in Nuclear Astrophysics (80 lecture hours) for the 1st year graduate students (Master Course), Chair of Nuclear Physics, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Winter-spring term 2021: Course in Electromagnetic Field Theory (80 lecture hours) for the 3rd year undergraduate students (Bachelor Course), Chair of Theoretical Physics, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

Winter-spring term 2021: Course in Nuclear Astrophysics (80 lecture hours) for the 1st year graduate students (Master Course), Chair of Nuclear Physics, Faculty of Physics, National University of Uzbekistan, Tashkent, Uzbekistan.

c. **Current Research Supervision by Ahmedov**

Currently supervised the doctoral/habilitation dissertations of the following PhD students/researchers:

*** Ahmadjon Abdujabbarov (Ph.D. degree defended in June 2009)**

*** Viktoriya Morozova (Ph.D. degree defended in June 2010)**

*** Ahror Mamadjanov (Ph.D. degree defended in June 2011)**

*** Ahmadjon Abdujabbarov (Dr.Sc. habilitation degree defended in October 2016)**

*** Sanjar Shaymatov (Ph.D. degree defended in December 2018)**

*** Farruh Atamurotov (Ph.D. degree defended in March 2018)**

*** Arman Tursunov (Dr.Sc. habilitation degree defended in July 2019)**

*** Javlon Rayimbaev (Ph.D. degree defended in November 2020)**

*** Ozodbek Rahimov (Ph.D. degree defended in May 2021)**

*** Husan Eshkuvatov (Ph.D. degree is expected in 2021)**

*** Abdullo Hakimov (Ph.D. degree is expected to be defended in September 2021)**

*** Pulat Tajimuratov (Ph.D. degree is expected in 2021)**

*** Bobir Toshmatov (Dr.Sc. habilitation degree is expected to be defended in December 2021)**

*** Shukhrat Mardonov (enrolled for Dr.Sc. habilitation degree at present)**

*** Yunusbek Turaev (enrolled for PhD degree at present)**

*** Malika Khudoyberdieva (enrolled for PhD degree at present)**

The following PhD students did part of their research with Ahmedov while enrolled in PhD program in other place under supervision of the eminent supervisors:

*** Mirshod Ermamatov (enrolled in INP, Tashkent, got PhD degree in year 2002)**

*** Valeria Kagramanova (enrolled in Oldenburg University, Germany, got PhD degree in year 2009)**

*** Ernazar Abdikamalov (enrolled in SISSA, Trieste, got PhD degree in year 2009)**

*** Farrukh Fattoyev (enrolled in Florida State University, got PhD degree in year 2011)**

*** Shukhrat Mardonov (enrolled in the University of the Basque Country, got Ph.D. degree in 2015)**

*** Arman Tursunov (enrolled in Silesian University in Opava, got Ph.D. degree in 2018)**

*** Bobir Toshmatov (enrolled in Silesian University in Opava, got Ph.D. degree in 2018)**

*** Askar Abdikamalov (enrolled in Fudan University in Shanghai, got Ph.D. degree in 2020)**

*** Bakhtiyor Narzilloyev (enrolled in Fudan University in Shanghai, got Ph.D. degree in 2020)**

*** Sardor Tojiev (enrolled in Bremen Jacobs University, Ph.D. degree is expected in 2021)**

Recently supervised by Ahmedov the MSc dissertations of the following students:

*** Ozodbek Rahimov (M.Sc. defended in 2008)**

*** Viktoriya Morozova (M.Sc. defended in 2009)**

*** Sanjar Shaymatov (M.Sc. defended in 2010)**

*** Abdullo Hakimov (M.Sc. defended in 2009)**

*** Sardor Tojiev (M.Sc. defended in 2010)**

*** Vyacheslav Giryanskiy (M.Sc. defended in 2009)**

*** Arman Tursunov (M.Sc. defended in 2013)**

*** Dilshod Fayzullayev (M.Sc. defended in June 2013)**

*** Nurbek Pardaev (M.Sc. defended in June 2014)**

*** Bakhtiyor Narzilloyev (M.Sc. defended in June 2018)**

*** Malika Khudoyberdieva (M.Sc. defended in June 2019)**

*** Shahnoza Anvarova (M.Sc. defended in June 2019)**

*** Sirojiddin Toshpulatov (M.Sc. defended in June 2021)**

D- MEMBERSHIP OF INSTITUTIONS & PROFESSIONAL BODIES

a. The World Academy of Science (**TWAS**) **Fellow**, elected on **27/11/2018/** Fellow of Islamic Academy of Sciences (FIAS) , elected on **01/12/2020**

b. Member of Scientific Council at the Institute of Nuclear Physics, Tashkent (from 2007 to 2017 years).

c. Member of Scientific Council at the Ulugh Beg Astronomical Institute, Tashkent (starting January 2003).

d. UNESCO-TWAS **Regular Associate** (Trieste, Italy) at the IUCAA (Pune, India), **2002-2004**

e. UNESCO-TWAS **Regular Associate** (Trieste, Italy) at the IUCAA (Pune, India), **2010-2012**

f. **UNESCO-TWAS Regular Associate (Trieste, Italy) at the TIFR (Mumbai, India), 2012-2014**

g. AS-ICTP **Regular Associate**, Trieste, Italy, **2005-2010**

h, **Member** of Scientific Council awarding PhD degree in Astrophysics and Radioastronomy at the National University of Uzbekistan (**January 2003 to 2013**).

i. **Vice-Chairman** of Scientific Council D.067.02.13 awarding PhD/DrSc degrees in Astrophysics and Radioastronomy & Theoretical Physics at the National University of Uzbekistan (**January 2009 to 2013**).

j. **Member** of the Expert Group of the Supreme Attestation Committee under Cabinet of Ministers of the Republic of Uzbekistan (**January 2014 to October 2020**).

k. **Vice-Chairman** of Scientific and Technical Council in Physics & Mathematics of Uzbekistan Ministry of Innovative Development (**2018 to 2020**).

l. **Member** of the Russian Gravitational Society from year 1988.

m. **Vice-Chairman** of Scientific Council DSc.03/30.12.2019. FM.01.09 awarding PhD/DSc degrees in Theoretical Physics at the National University of Uzbekistan (starting January 2021).

n. Member of Scientific Council 02/30.12.2019.FM.15.01 awarding PhD/DSc degrees in Astronomy at the Ulugh Beg Astronomical Institute (starting December 2020).

E- HONOURS, PRIZES, MEDALS & AWARDS

Give details of awarding party, occasion, place and date of award.

a. **"The Researcher of the Year 2018"** in Uzbekistan, awarded by Scopus on **23/11/2018**

b. Uzbekistan State Order **"Glory of Labor", 2012 (Mehnat Shuhrati ordeni)**

c. **"Science Leader"** Web of Science award - **2017**, selection by the Clarivate Analytics Web of Science as the highly cited author at the second position in the country (Uzbekistan) with 77 papers published in the refereed journals during the last 10 years

d. **Award** of Uzbekistan Academy of Sciences/Third World Academy of Sciences for Young Scientists in Physics in Year **2001.**

e. **Award** of Uzbekistan Academy of Sciences for Young Scientists in Physics in Year **1996**

f. Honorary Professor of Jamia Millia Islamia University, New Delhi, India, **2016**

g. Certificate of honor of the Cabinet of Ministers of Uzbekistan, year **2017**

G- CONFERENCES ATTENDED (speaker, author and/or participant)

a. Conferences attended

1st PU International Conference on Gravitation and Cosmology, Lahore, Pakistan, **January 27-31, 2019 (Invited speaker)**
VI ITALIAN WORKSHOP ON RELATIVISTIC ASTROPHYSICS, Islamabad, **24-26 January 2019 (Invited speaker)**
International workshop "New aspects of the Hadron and Astro/Nuclear Physics", Tashkent, **November 5- 10, 2018 (Invited speaker)**
First Annual Meeting of Kazakh Physical Society, Nazarbayev University, Astana, **10-13 October 2018 (Invited speaker)**
XXX General Assembly of International Astronomical Union, Viena, **19-31 August, 2018 (Speaker)**
International Conference "ACTUAL PROBLEMS OF MODERN PHYSICS", Almaty, Kazakhstan, **April 12 - 15, 2018 (Invited speaker)**
International Conference on Applied and Fundamental Problems of Physics, Tashkent, **13-14 JUNE, 2017 (Invited speaker)**
V ITALIAN WORKSHOP ON RELATIVISTIC ASTROPHYSICS, Lecce, **21-23 JULY 2016 (Invited speaker)**
The workshop "Phenomenology of Strong Gravity", Astana, **September 14-16, 2016 (Invited speaker)**
RAGtime, Silesian university in Opava, Czech Republic, **01 – 05 November, 2015 (Invited speaker)**
The 14th MG XIV MARCEL GROSSMANN MEETING, **ROME - 12-18 JULY, 2015 (Speaker)**
United Nations/ICTP Workshop on the Use of Global Navigation Satellite
Systems for Scientific Applications, Trieste, Italy, **1-5 December 2014 (Invited speaker)**
Synergy-2014, Olomouc, Czech Republic, **24 – 29 November 2014 (Invited speaker)**
International Conference on Matters of Gravity and the Universe, Delhi, **27-29 October, 2014(Invited speaker)**
International Congress of Mathematicians, Seoul, Korea, **August 13 - 21, 2014 (Speaker)**
40th COSPAR Scientific Assembly, Moscow, **3 - 9 August 2014 (Invited speaker)**
Synergy-2013, Prague, Czech Republic, **22 November – 1 December 2013 (Invited speaker)**
RAGtime, Silesian university in Opava, Czech Republic, **16 – 18 July 2013 (Invited speaker)**
20th International Conference on General Relativity and Gravitation
Warsaw, **Poland, 7 – 13 July 2013 (Speaker)**
4th Italian Pakistan Workshop on Relativistic Astrophysics

Islamabad, **15 – 17 February** **2013 (Invited speaker)**
39th COSPAR Scientific Assembly, Mysore, India, **14 - 22 July** **2012 (Speaker)**
The Second UN Workshop on "Space Technology Applications
for Socio-Economic Benefits", Hanoi, Vietnam, **10-14 October** **2011 (Invited speaker)**
13th Regional Conference on Mathematical Physics
Antalya, Turkey, **27 – 31 October** **2010 (Invited speaker)**
United Nations Workshop on the Applications of Global Navigation
Satellite Systems, Chisinau, Moldova, **17 – 21 May** **2010 (Invited speaker)**
The First IHY Int. Workshop on Advancing Very Low Freq.(VLF)
Science Through the Global AWESOME Network, Tunis **2009 (Invited speaker)**
2nd Int Conf & Advances School Turbulent Mixing and Beyond,
AS-ICTP, Trieste, Italy **2009 (Participant)**
Summer College on Plasma Physics, AS-ICTP
Trieste, Italy **2009 (Participant)**
Spring School on Gauge Theory/Gravity Correspondence
AS-ICTP, Trieste, Italy **2008 (Participant)**
Summer School in Cosmology, AS-ICTP
Trieste, Italy **2008 (Participant)**
Advancing VLF Science through the AWESOME Network
Workshop, Sebha, Libya **2008 (Invited speaker)**
3rd Stueckelberg Workshop on Relativistic Field Theories
Pescara, Italy **2008 (Speaker)**
Spring School on Superstring Theory and Related Topics
AS-ICTP, Trieste, Italy **2007 (Participant)**
11th Marcel Grossmann Meeting on General
Relativity, Berlin **2006 (Speaker)**
Summer School in Cosmology, AS-ICTP
Trieste, Italy **2006 (Participant)**
XXVI General Assembly of International
Astronomical Union, Praha, Czech Republic **2006 (Speaker)**
Neutrino International Conference in Armenia
Yerevan **2005 (Invited speaker)**
International Conference on Gravitation and
Cosmology, Kochi, India **2004 (Speaker)**
International Conference on Gravitation and
Cosmology, Kharagpur, India **2000 (Speaker)**
Int. Conference on Modern Problems of
Nuclear Physics, Uzbekistan **2001, 2003, 2006, 2009, 2016, 2019 (Invited speaker)**
Summer School on Black Holes
Bad-Honnef, Germany **2001 (Speaker)**
5th Chittagong Conference on Mathematical
Physics, Bangladesh **1999 (Invited speaker)**
3rd ICRA Network Workshop on Electrodynamics
and Magnetohydrodynamics around Black Holes
Rome-Pescara, Italy **1999 (Speaker)**
International Symposium on Experimental
Gravitation, Samarkand, Uzbekistan
(co-organizer) **1999 (Invited speaker)**
Int. European Conference on Gravitation
Journees Relativistes 99, Weimar, Germany **1999 (Speaker)**
3rd W.Fairbank Mtg on Lense-Thirring Effect
Rome-Pescara **1998 (Speaker)**
WE-Heraeus Int. Seminar on Math Problems in
General Relativity, Bad-Honnef, Germany **1998 (Speaker)**
19th Texas Conference on Relativistic
Astrophysics, Paris **1998 (Speaker)**
15th International Conference on General
Relativity and Gravitation, Pune, India **1997 (Speaker)**
5th Int. School of Astrophysics 'D.Chalonge'
Erice, Italy **1996 (Participant)**
12th Italian Gravitational Conference, Rome **1996 (Speaker)**

20th Nathiagali Summer College on Physics and Contemporary Needs, Pakistan	**1995 (Speaker)**
14th International Conference on General Relativity and Gravitation, Florence	**1995 (Speaker)**
24th International Cosmic Ray Conference Roma	**1995 (Speaker)**
International Symposium on Experimental Gravitation, Nathiagali, Pakistan	**1993 (Speaker)**
International Friedmann Seminar on Cosmology and Gravitation, St.Petersburg, Russia	**1993 (Speaker)**
8th Russian Gravitational Conference, Moscow Russia	**1993 (Speaker)**
9th All-Union Workshop on Gravitation and Electromagnetism, Minsk, Belorussia	**1989 (Speaker)**
All-Union Workshop on Relativistic Astrometry Samarkand, Uzbekistan	**1989 (Speaker)**
7th All-Union Gravitational Conference, Yerevan, Armenia	**1988 (Speaker)**

b. **Conferences organized**

Chairman of Local Organizing Committee of the International Workshop on Relativistic Astrophysics and Gravitation, IWRAG-2021 in Ulugh Beg Astronomical Institute, Uzbekistanь **May 12 - 14, 2021**.

Chairman of Organizing Committee of the 3rd National Conference of Young Scientists of Uzbekistan "Nuclear Physics and Nuclear Technologies", **December 1 – 2, 2010**.

Member of the MG15 (Marcel Grossmann Meeting on Recent Developments in Theoretical and Experimental General Relativity, Gravitation, and Relativistic Field) International Coordinating Committee, July 1-7, **2018.**

Member of the MG16 (The Sixteenth Marcel Grossmann Meeting on Recent Developments in Theoretical and Experimental General Relativity, Astrophysics and Relativistic Field Theories) International Coordinating Committee, July 5-10, **2021**.

Member of the International Advisory Committee of joint meeting of ICGAC XIII (International Conference on Gravitation, Astrophysics, and Cosmology) and IK15 (Italian-Korean Symposium on Relativistic Astrophysics), July 3-7, **2017.**

Member of the International Program Committee of 5th Ulyanovsk International School-Seminar on Theoretical and Observational Cosmology – UISS-2016, September 19 – 30, **2016.**

Member of the International Advisory Committee of the V-th International Conference on on Cosmology, Relativistic and Nuclear Astrophysics (ICCRNA 2017), Almaty, October 31-November 4, **2017.**

Member of the International Advisory Committee of the ICGAC-12, XIIth International Conference on Gravitation, Astrophysics and Cosmology, Moscow, June 28-July 5, **2015.**

Member of the International Advisory Committee of the ICGAC-11, XIth International Conference on Gravitation, Astrophysics and Cosmology of Asia-Pacific Countries, Almaty, October 1-5, **2013.**

Co-chairman of Organizing Committee of the International Symposium on Experimental Gravitation, Samarkand, Uzbekistan, **1999**

Member of Organizing Committee of the International Conference on Modern Problems of Nuclear Physics, Uzbekistan, **2001, 2003, 2006, 2009, 2016**

Member of Organizing Committee and **Invited Speaker** of the Regular Workshops of Young Astronomers of Uzbekistan (annual and bi-annual, nine events in Uzbekistan were organized)

H- SPECIFIC FIELDS OF SCIENTIFIC INTEREST

Research keywords:
General relativity and gravitation; relativistic astrophysics; black holes; magnetized neutron stars; perturbations of stars and black holes; energetics and optics of gravitational compact objects.

The main fields in which the scientific activity on relativistic astrophysics in Uzbekistan leaded by Ahmedov has concentrated are those related to the development of applications of general relativity and gravitation (GR) to relativistic astrophysics. These include relativistic astrophysics and cosmology, gravitational waves and practical results on ionospheric studies for satellite based positioning systems.

a. The main scientific interest of Bobomurat Ahmedov is in **Relativistic Astrophysics**. The past decades have seen spectacular new revolutionary discoveries and developments in our knowledge of relativistic cosmology, the physics of compact objects and in high precision gravity experiments. As a result, relativistic astrophysics and cosmology have become a very attractive and modern area of research in the World in particular in the Central Asia.

b. **Neutron Stars and Pulsars**. Compact relativistic neutron stars with the strong gravitational and electromagnetic fields observed as pulsars play a role of astrophysical laboratory which provide the best strong-field test of general relativity and it is the subject of current research in the Central Asia. The force-free magnetosphere of oscillating and rotating magnetized neutron stars has been also studied. A qualitative model for the explanation of the phenomenology of intermittent pulsars in terms of stellar oscillations that are periodically excited by star glitches has been proposed. The conditions for radio emission in rotating and oscillating magnetars, by focusing on the main physical processes determining when the magnetars may be radio-loud or radio-quiet are also studied. Present observations showing a close connection between the burst activity of magnetars and the generation of the radio emission in the magnetar magnetosphere are naturally accounted for.

c. **Black Holes** Starting from being a purely mathematical abstraction, over the past few decades black holes (BHs) have become one of the most interesting and attractive objects for analytical, numerical and observational research. BHs are essentially generalrelativistic objects

and require the use of the complex mathematical apparatus of general relativity for a complete description of the physical phenomena taking place in their vicinity, thus making the physics of BHs particularly challenging in Central Asia. Recently the study of BHs and, in particular, BH binary systems, has attracted considerable new interest as these are now considered as the most probable candidates for gravitational wave detection. When two astrophysical BHs merge, they release an enormous amount of energy in the form of gravitational radiation, making them the brightest objects in the Universe. In view of the rapid scientific progress in this direction, it is now of crucial importance for a search to be made for possible electromagnetic phenomena, following each phase of BH binary evolution. Besides the astrophysical importance for the complete physical description of BH binary evolution, the presence of a detectable electromagnetic signal from the BH binary merger would provide an additional channel of information, which would help us to interpret correctly measurements of the gravitational signal.

The relativistic astrophysics group in Tashkent leaded by Ahmedov has long-standing experience in applying general relativity to astrophysical problems and in the use of state of the art numerical and analytical techniques in studying the electrodynamics of relativistic stars and black holes. In particular, the basic formalism to study the influence of strongly curved spacetime on the properties of interior and exterior electromagnetic fields of magnetized relativistic stars and black holes has been developed. A general formalism to describe the black hole shadow as an arbitrary polar curve expressed in terms of a Legendre expansion has been developed, and it has been shown that the new formalism provides an accurate and robust description of noisy observational data, with smaller error variances when compared to previous measurements of the distortion and is applied tothe first image of sypermassive BH M87 image detected by Event Horizon Telescope. Gravitational lensing by the various compact objects has been extensively studied.

d. **Numerical Relativity, Electromagnetic Counterparts and Gravitational Waves** The inspiral and merger of two NSs in binary orbit is the inevitable fate of close-binary evolution, whose main dissipation mechanism is the emission of gravitational waves. The detection of gravitational waves from NS binaries indeed provides a wide variety of physical information on the component stars, including their mass, spin, radius and equations of state (EOS). However, the study of NS binary systems goes well beyond the impact it has on gravitational wave astronomy and is most likely very relevant to the understanding of the

origin of gamma-ray bursts (GRBs). Numerical simulations of merging NS binaries provide complete and accurate simulations of the inspiral and merger of a NS binary leading to the prompt or delayed formation of a BH and to its ringdown. By computing the complete gravitational wave signal and their electromagnetic counterparts produced in the process it is possible to show that the gravitational waves are strongly correlated to the properties of the sources emitting them.

I- PUBLICATIONS

BOOKS (authored, translated, edited and/or co-edited):

(a) A.A. Abdujabbarov, **B.J. Ahmedov**, Photons Motion and Optical Properties of Black holes, Tashkent, 2019, 184 pp.

(b) **B. Ahmedov** and A. Bokhari, Editors of Mathematical Physics, General Relativity and Relativistic Astrophysics, Part I, The Arabian Journal of Mathematics, Springer, Berlin, (2019) Vol. 8, Issue 3, 161–254.

(c) **B. Ahmedov** and A. Bokhari, Editors of Mathematical Physics, General Relativity and Relativistic Astrophysics, Part II, The Arabian Journal of Mathematics, Springer, Berlin, (2019) Vol. 8, Issue 4, 255–334.

(d) **Ahmedov B.J.**, Plasma Magnetosphere of Magnetize Neutron Stars, Scientific Review, Tashkent, 2014, 65 pp.

(e) **Ahmedov B.J.**, Lectures on Gravitation Theory and Relativistic Astrophysics, Tashkent, 2010, 250 pp, in Russian.

(f) **B.J. Ahmedov**, Lecture Notes on General Relativ¬ity and Gravitation, National University of Uzbekistan, Tashkent, 2002 (in Russian).

(g) **B.J. Ahmedov**, Lecture Notes on Relativistic Astrophysics, National University of Uzbekistan, Tashkent, 2003 (in Russian).

(h) A.A. Abdujabbarov, **B.J. Ahmedov**, Optical and observational properties of black holes, World Scientific, 2021, under preparation.

(i) A.A. Abdujabbarov, **B.J. Ahmedov**, A.S. Rakhmatov, Modern Status of High Energy Physics and Astrophysics, Renessans Press, Tashkent, 2021, in Uzbek.

(j) **B. Ahmedov** and A. Bokhari, Editors of Relativistic Astrophysics and Gravitation, IWRAG-2021, The Arabian Journal of Mathematics, Springer, Berlin, (2021) Vol. 10, Special Issue, under preparation.

(k) **B.J. Ahmedov**, Wenbiao Han, A.A. Abdujabbarov, Editors of Special Issue "Particles and Fields in Black Hole Environment", Galaxies, MDPI (2021) under progress https://www.mdpi.com/journal/galaxies/special_issues/black_hole_environment

(l) U. Camci, **B. Ahmedov** and A. Bokhari, Editors of Special Issue "Noether and Space-Time Symmetries in Physics", Symmetry, MDPI (2021) under progress https://www.mdpi.com/journal/symmetry/special_issues/Noether_Space-Time_Symmetries_Physics

PAPERS/ARTICLES

(a) **Publications in international refereed journals:**

1. Bakhtiyor Narzilloev, Javlon Rayimbaev, Ahmadjon Abdujabbarov, **Bobomurat Ahmedov**, Cosimo Bambi1, Dynamics of charged particles and magnetic dipoles around magnetized quasi-Schwarzschild black holes, **European Physical Journal C,** Vol. 81, id 269 (2021), https://doi.org/10.1140/epjc/s10052-021-09074-z (IF: 4.770).
2. Javlon Rayimbaev, Alexandra Demyanova, Ugur Camci, Ahmadjon Abdujabbarov and **Bobomurat Ahmedov**, Dynamics of charged and magnetized particles around cylindrical black holes immersed in external magnetic field, **International Journal of Modern Physics D,** Vol. 30, id. 2150019 (2021), DOI: 10.1142/S021827182150019X (IF: 2.154) .
3. Nozima Juraeva, Javlon Rayimbaev, Ahmadjon Abdujabbarov, **Bobomurat Ahmedov**, Satimbay Palvanov, Distinguishing magnetically and electrically charged Reissner–Nordström black holes by magnetized particle motion, **European Physical Journal C,** Vol. 81, id 70 (2021), https://doi.org/10.1140/epjc/s10052-021-08876-5 (IF: 4.770) .
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FINAL REPORT - SEPTEMBER 2016 of 3 Years Research Project *"Electrodynamics of magnetized rotating and oscillating astrophysical compact objects"* co-leaded by Ahmedov from the Volkswagen Stiftung, **Grant No. 86866**, Germany (**1 February 2013 - 1 September 2016**)

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FINAL REPORT - DECEMBER 2011 of 3 Years Research Project *"Monitoring of Very Low Frequency Signals in Earth Ionosphere for Prognosis of Dangerous Tectonic Phenomena"* leaded by Ahmedov from the Uzbekistan Academy of Sciences, **Grant FA-A17-077**, Tashkent, Uzbekistan (**1 January 2009 - 31 December 2011**).

FINAL REPORT - DECEMBER 2009 of 2 Years Research Project *"General Relativistic Effects in Axial Symmetric Spacetimes"* from the Foundation for Fundamental Studies leaded by Ahmedov of the Uzbekistan Academy of Sciences, **Grant #5-08**, Tashkent, Uzbekistan (**1 January 2008 - 31 December 2009**).

CONFERENCE PRESENTATIONS (not necessarily published):

(a) **Plenary talk** "Optical and Energetic Properties of Gravitational Compact Objects" by **B. Ahmedov** at the 1st PU International Conference on Gravitation and Cosmology", Punjab University, Lahore, January 27 -31, 2019

(b) **Plenary talk** "Modern Understanding of Structure and Evolution of the Universe" by **B. Ahmedov** at the IX International Conference "Modern problems of Nuclear physics and Nuclear technologies", Tashkent, 27-09-2019.

(c) **Plenary talk** "Energetic an Optical Properties of Gravitational Compact Objects" by **B. Ahmedov** at the VIth Italian-Pakistani Workshop on Relativistic Astrophysics, School of Natural Sciences (SNS), NUST, Islamabad, January 24-26, 2019

(d) **Invited talk** by **B. Ahmedov** at conference Exploring the energetic Universe 2019. June 17-21, Nur-Sultan, Kazakhstan, 2019.

(e) **Invited talk** by **Bobomurat Ahmedov, Optical Properties and Shadow of Axial Symmetric Black Holes** at the "International Conference "ACTUAL PROBLEMS OF MODERN PHYSICS" (Abdildin readings), Al-Farabi Kazakh National University, Almaty, Kazakhstan, April 12 - 15, 2018"

(f) Invited talk by **B. Ahmedov** at the International workshop "New aspects of the Hadron and Astro/Nuclear Physics" National University of Uzbekistan, Tashkent, November 5- 10, 2018, 09/11/2018, Energetic and optical properties of compact objects.

(g) Invited talk by **B. Ahmedov** at the First Annual Meeting of Kazakh Physical Society 10-13 October 2018, Nazarbayev University, Astana, 12/10/2018, Optical and energetic properties of black holes.

(h) Invited talk by **B. Ahmedov** at Erasmus+ Conference of National Erasmus+ Office (NEO) in Uzbekistan, 04/12/2018, ICM Project on Development of International Collaboration on Astrophysics.

and other talks during the recent years

Invited talk by **B. Ahmedov** at Erasmus+ Workshop in NUUz of National Erasmus+ Office (NEO) in Uzbekistan, 22/11/2018, ICM Partnership.

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Talk by Ahmedov B.J., Abstract No. OP-11-478 , Section 11. Mathematical Physics, Electromagnetic Fields Outside an Oscillating Relativistic Star, **International Congress of Mathematicians**, August 13 - 21, 2014, Coex , Seoul , Korea.

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Talk by Ahmedov B.J., "Subpulse drift velocity of pulsar magnetosphere within the space-charge limited flow model", **40th COSPAR Scientific Assembly**, 2 - 10 August 2014, Moscow, Russia (scheduled for an oral presentation in scientific event E1.15, Lecture Room S6-12 on Tuesday, August 05, 2014, 10:00-10:15 – 15 min).

Talk by **Ahmedov B.J.,** "Ionospheric Precursors of Local Earthquakes Observed using Kitab GPS Station Data during 2012-2014 years", **40th COSPAR Scientific Assembly**, 2 - 10 August 2014, Moscow, Russia (scheduled for an oral presentation in scientific event C1.1, Lecture Room S1-04 on Wednesday, August 06, 2014, 18:15-18:30 – 15 min).

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Plenary talk by **Ahmedov B.J.,** Jamia Millia Islamia, New Delhi, 27 November, 2014, “Electromagnetic fields and plasma magnetospheres of compact objects in general relativity”, International Conference on Matters of Gravity and the Universe, Delhi.

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A**hmedov B.J.,** Ionospheric anomailies of local earthquakes detected by TEC measurements at Tashkent and Kitab GPS stations, United Nations/ICTP Workshop on the Use of Global Navigation Satellite Systems for Scientific Applications, Trieste, Italy, 1-5 December 2014.

and many other presentations...

CITATIONS (of published work):

(a) Total number of citations: **~ 4100; h-index = 35 (Google Scholar)**

(b) Maximum citations of a published paper: **~ 175**

Title of paper: A.A. Abdujabbarov, M. Amir, **B. Ahmedov**, Ghosh, Sushant, Shadow of rotating regular black holes, **Phys. Rev. D**, 2016, V.93, 104004, 11pp.

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J- ANY OTHER DETAILS

During the last twenty five years, due to the extensive help and assistance of the international scientific community, there has been a great success in the development and establishment of new well-functioning and competitive scientific groups specialized in general relativity and relativistic astrophysics in Uzbekistan (Tashkent), Kazakhstan (Nur-Sultan and Almaty), Kyrgyzstan (Bishkek) and great achievements have been made on the study in Central Asia in relativistic cosmology and astrophysics of compact gravitational objects.

By combining skills and having permanent scientific discussions, public presentations and interviews, active participation in the educational processes I am confident to be able to make an impact on the development of Theoretical and Relativistic Astrophysics in the Central Asia region.

Name: **Bobomurat Ahmedov**

Signature: 

Date: **11 August, 2021**