Prof. Dr. Prof H.C. Emilio Elizalde
Consejo Superior de Investigaciones Cientificas
Instituto de Ciencias del Espacio (ICE-CSIC)
Campus UAB, Carrer de Can Magrans s/n
08193 Cerdanyola V. (Barcelona) Spain
tel: +34937379788
e-mail: elizalde@ieec.uab.es
web: http://www.ice.csic.es/personal/elizalde/eli/eli.htm

CV-Resume Prof. Emilio Elizalde

Prof. Emilio Elizalde is the founding leader of the "Theoretical Physics and Cosmology" group of the CSIC Institute for Space Science (ICE-CSIC and IEEC), in Bellaterra (Barcelona), a group highly recognized internationally, leader in Spain in its field. Elizalde, a cofounder of both ICE and IEEC, attracted Sergei D. Odintsov to Barcelona in 1992 and later sponsored his application for an ICREA Professorship in 2003. It is to a good extent thanks to the impressive activity of both and their collaborators that ICE and IEEC have led all rankings of the Science Citation Normalized Impact Factor in Spain for the last ten years: consistently ranked #1 of all Spanish scientific institutions, #2 in Europe, and #8 to #15 worldwide (Normalized Impact Factor of the Science Citation Index SCIMAGO Institutions Rankings, World Reports 2009 to 2017). The ICE is surpassed in this ranking only by a few institutions of the caliber of the American Cancer Society, the Whitehead Institute for Biomedical Research and the Broad Institute of MIT and Harvard. This performance is without precedent in Spanish science since these rankings exist, it is even hard to believe. The contribution of Elizalde and Odintsov to this remarkable success has been crucial. Elizalde is also very proud of his former students, most of whom are enormously successful scientists now, some leading groundbreaking projects. EE got an Honorary Professorship from Tomsk TSPU University, Russia, the Gold Medal of this university (2010), and an Honor Certificate in recognition of Scientific and Academic Services (2018). Five times "Visiting Scholar" at MIT (Mass, USA). Two prestigious "Invitational Fellowships of the Japan Government for Excellent Researchers" (2016, 2017). Four Distinctions of Merit from the National Higher Research Council of Spain (2013, 2016, 2018, 2019). Honorary Appointment from TUSUR Technological University, Russia (2017). Elected Member of the ESF College of Expert Reviewers, and Member of the prestigious Barcelona Graduate School of Mathematics (BGSMath). Recipient of a "Connecting Great Minds" Certificate of Appreciation, World Scientific, 2016, and also of the Medal and the Founder's Distinction Certificate of the Alexander-von-Humboldt Association of Spain, of which he was elected Secretary General and is presently Vice-President.

As a young PhD, EE was Humboldt Fellow in Hamburg and Berlin (Germany), and SEP Fellow in Japan. He held visiting Scholar/Research Contracts at Hamburg U, the MIT, the CfA at Harvard U, PennState U, Trondheim NTNU, the KEK, Hiroshima U, Jena U, Leipzig U, the NTZ, and Trento U. Professor of Mathematics and Physics at Barcelona University for over twenty years. Since 1993, a member of the National Higher Research Council of Spain (CSIC), where he is a Senior Research Professor and Principal Investigator of various projects—including a top rated Consolider one (group project)—and executive board member of both a Consolider-Ingenio 2010 (CPAN) and a European Union project (CASIMIR). He is presently a member of two European COST Actions: CA15117: CANTATA and CA16214: PHAROS. He has been proposed by TUSUR University (Russian Federation) as international PI applicant to the top-ranked projects from the Government of the Russian Federation (7th stage), for "State support of scientific research conducted under supervision of leading scientists in Russian institutions of higher education, 2019", Registration number: 2019-220-07-7944; 1-1-2020 to 31-12-2023.

Prof. Emilio Elizalde was born in Balaguer (Spain) in 1950. He obtained his MS in Physics, MS in Mathematics, and PhD in Physics from Barcelona University, first and last with Extraordinary Master and Doctorate Awards, respectively. As he states it in his personal scientific profile: *"My scientific career officially started on a June 29th, some years ago, during the Saint´s Day celebration of my first mentor, the late Prof. Pedro Pascual who, over a glass of Torres "Sangre de Toro" wine, handed me a couple of references by Hans*

Bethe concerning the missing neutrinos problem. I completed my Master Thesis on this issue. For my PhD Thesis, written under the supervision of Prof. Quim Gomis (and Pascual′s occasionally), I studied the compatibility of the relativistic equations of Quantum Field Theory for higher-spin particles under minimal coupling, in the light-cone reference frame."

Concerning the performance of Elizalde in mathematical-physics subjects, started with pioneering research on the analytic continuation of different classes of zeta and other special functions in the late 1980's, one should mention that, after Steven Hawking's seminal paper (Commun. Math. Phys. 55, 133, 1977) on zeta function regularization which, with almost two-thousand citations, remains today the most cited reference on the subject, the book (E. Elizalde et al, *Zeta regularization techniques with applications*, World Sci, 1994), with ca. one-thousand, goes as the second most cited reference on this matter. This is a remarkable achievment, even more in such a hard area as mathematical-physics. EE's 1995 Springer monograph *Ten Physical Applications of Spectral Zeta Functions* (2nd Ed. 2012) has got ca. 700 citations. His overall results are some 14,000 cit, including 30 works with 100+, and an h=55 (Google Scholar), a performance of world level in his rather hard domain. He has got groundbreaking results on zeta functions, the Chowla-Selberg formula, and theoretical cosmology. One zeta function is named after him.

To summarize, EE is a special functions expert and a cosmologist, author of several of the leading references in the fields of Zeta Functions and Heat Kernels, and their applications to Theoretical Physics and Cosmology, including three well-known books published by Springer Verlag and World Scientific. Catalonia's top mathematical physicist, according to the Reports issued by the Institute for Catalan Studies, the list of his former students includes Prof. J. Soto, Dr. A. Romeo, Prof. S. Gómez, Dr. S. Leseduarte, Dr. S.R. Hildebrandt, Dr. P. Fosalba, Prof. E. Gaztañaga, and several other. Most of them are recognized experts of world class in their respective fields.

Among their achievements---of which EE is extremely proud---it should be mentioned that Joan Soto is an outstanding specialist on heavy quarks and nucleon-nucleon interactions, leading on its turn a top class group in Barcelona University, first rated in Spain by the impact of their influential publications. Enrique Gaztañaga is probably the best known large-scale cosmologist in Spain, the PI or co-PI of a number of high-rated international projects, as DES, MICE, and PAU Consolider. He is leading a very strong group on observational cosmology. Pablo Fosalba and Sergi R. Hildebrandt are both PLANCK scientists, signing all papers of this groundbreaking mission. Hildebrandt, moreover, is involved in the BICEP2 and the joint B2P collaboration, as the only Spaniard in these missions.

A few years ago, the Nobel Prize in Physics was awarded to three astrophysicists, the leaders of two teams who discovered that the expansion of the Universe is presently accelerating (a Dark Energy era) and has been doing so for a large part of its existence. The studies of Elizalde, Odintsov and their students and collaborators propose a qualitatively new theoretical picture, with roots on fundamental principles of Physics and not only valid for the present but also for the early Universe and its future evolution. Their theoretical work, on a natural modification of Einstein's Gravity, is compatible with the most recent astrophysical data and is able to explain, in a comprehensive and unified way, why and how the Universe was originated and evolves, and why and how the Universe is able to change its own laws and behavior at different epochs. What is indeed being confirmed by the most recent and accurate astronomical observations, as has recently been the case with the new evidences of the evolution of the Hubble constant.

As an important part of his profile, Elizalde has also carried out a very extensive outreach activity as communicator of scientific knowledge to the society, in Spain and abroad, in a very serious, professional, but very accessible way. Over twenty books in all, from schoolbooks to dictionaries, articles for popular science journals, some hundred articles for newspapers and magazines, including all sort of profound social discussions, as science and religion, the Universe's origin from different perspectives, etc., translations of books, Scientific American articles and the like from several languages, some of them on the philosophy of science. Also to be taken into account is the extensive list of conferences given in schools, town-halls, social clubs, auditoriums of different sort, etc., the participations in Graduierten Kollegs and other PhD Programs in Europe (Germany, France, Italy, Norway, Russia, Spain), Asia (India, Japan), and America (USA, Mexico,

Colombia, Brazil). He's got a Prize as Most Valued Reviewer of 2014 by the prestigious journal Annals of Physics, which Editor in Chief is Prof. Frank Wilczek, Nobel Prize Laureate 2004, and was invited as a Key Speaker to the International Conference on Astrophysics and Particle Physics 2016, Dallas, USA, by Committee Samuel C.C. Ting, NP Laureate 1976. Elizalde is a Fellow of the Institute of Physics of the United Kingdom and a member of a dozen scientific societies, including the American Mathematical and PhysicalSocieties, the European Mathematical and Physical Societies, the Society for Industrial and Applied Mathematics, and the New York Academy of Sciences. He is the Founding Editor-in-Chief of the International Journals "Galaxies" (MDPI AG, Basel, Switzerland) and "Frontiers in Mathematical Physics" (FMP, Lausanne, Switzerland). He is or has been a member of the Editorial Boards of fifteen international journals.

He acts as referee for many international journals, among which, Physical Review Letters, the Journal of Mathematical Physics and the Journal of Number Theory. Has been involved as a consultant, an external referee and a member of international boards, panels and commissions for the assignment of research funds, Faculty appointments, and PhD degrees for many Universities worldwide: Leipzig, California, Trento, PennState, Kaiserslautern, Oklahoma, Brandeis, the Harvard-Smithsonian Center of Harvard University, the University of Cape Town, the Deutsche Forschungsgemeinschaft (DFG), the Netherlands Organization for Scientifc Research (NWO), the National Science Foundation (NSF), CONICYT, IOP, l'Agence Nationale de la Recherche (France), the Spanish and the Catalan National Evaluation Agencies, and others. Elizalde was invited to the key Conferences of the Spanish Presidency of the EU Council, and has been a key or principal speaker in the most prestigious Conferences on his specialties worldwide, as the 4th Sakharov Conference on Physics, Moscow, and many others, listed in his cv.

Elizalde is the author of over 300 research papers in refereed International Journals and, in all, ca 900 original articles and contributions of different kind, including media and newspaper collaborations. Translator in the field, he speaks English, German, French and Italian, on top of Spanish and Catalan.

Some Representative Papers

1) Late-time cosmology in (phantom) scalar-tensor theory: Dark energy and the cosmic speed-up.
By Emilio Elizalde, Shin'ichi Nojiri, Sergei D. Odintsov. Phys.Rev.D70:043539,2004,. [hep-th/0405034]

2) A Class of viable modified f(R) gravities describing inflation and the onset of accelerated expansion.
By G. Cognola, E. Elizalde, S. Nojiri, S.D. Odintsov, L. Sebastiani, S. Zerbini. Phys.Rev.D77:046009,2008,. [arXiv:0712.4017]

3) Dark energy in modified Gauss-Bonnet gravity: Late-time acceleration and the hierarchy problem.
By Guido Cognola, Emilio Elizalde, Shin'ichi Nojiri, Sergei D. Odintsov, Sergio Zerbini.
Phys.Rev.D73:084007,2006,. [hep-th/0601008]

4) Dark energy: Vacuum fluctuations, the effective phantom phase, and holography.
By Emilio Elizalde, Shin'ichi Nojiri, Sergei D. Odintsov, Peng Wang. Phys.Rev.D71:103504,2005,. [hep-th/0502082]

5) One-loop f(R) gravity in de Sitter universe.
By Guido Cognola, Emilio Elizalde, Shin'ichi Nojiri, Sergei D. Odintsov, Sergio Zerbini.
JCAP 0502:010,2005,. [hep-th/0501096]

6) Observational constraints on dark energy with generalized equations of state.
By Salvatore Capozziello, V.F. Cardone, E. Elizalde, S. Nojiri, S.D. Odintsov.
Phys.Rev.D73:043512,2006,. [astro-ph/0508350]

7) Heat kernel coefficients of the Laplace operator on the D-dimensional ball.
By Michael Bordag, E. Elizalde, K. Kirsten. J.Math.Phys.37:895-916,1996,. [hep-th/9503023]

8) Phantom scalar dark energy as modified gravity: Understanding the origin of the Big Rip singularity.
By F. Briscese, E. Elizalde, S. Nojiri, S.D. Odintsov. Phys.Lett.B646:105-111,2007,. [hep-th/0612220]

9) [Casimir energies for massive fields in a spherical geometry.](#)
By Michael Bordag, E. Elizalde, K. Kirsten, S. Leseduarte. Phys.Rev.D56:4896-4904,1997,. [hep-th/9608071]

10) [Casimir effect in de Sitter and anti-de Sitter brane worlds.](#)
By Emilio Elizalde, Shin'ichi Nojiri, Sergei D. Odintsov, Sachiko Ogushi. Phys.Rev.D67:063515,2003,. [hep-th/0209242]

11) [String-inspired Gauss-Bonnet gravity reconstructed from the universe expansion history and yielding the transition from matter dominance to dark energy.](#)
By Guido Cognola, Emilio Elizalde, Shin'ichi Nojiri, Sergei Odintsov, Sergio Zerbini. Phys.Rev.D75:086002,2007,. [hep-th/0611198]

12) [Casimir energy for a massive fermionic quantum field with a spherical boundary.](#)
By E. Elizalde, Michael Bordag, K. Kirsten. J.Phys.A31:1743-1759,1998,. [hep-th/9707083]

13) [Viscous little rip cosmology.](#)
By I Brevik, E Elizalde, S Nojiri, SD Odintsov. Phys.Rev.D84:103508,2011,.

14) [Zeta function regularization, the multiplicative anomaly and the Wodzicki residue.](#)
By Emilio Elizalde, Luciano Vanzo, Sergio Zerbini. Commun.Math.Phys.194:613-630,1998,. [hep-th/9701060]

15) [ΛCDM epoch reconstruction from F (R, G) and modified Gauss–Bonnet gravities.](#)
By E Elizalde, R Myrzakulov, VV Obukhov, D Sáez-Gómez. Classical and Quantum Gravity 27 (9), 095007, 2010.

16) [Born-Infeld quantum condensate as dark energy in the universe.](#)
By Emilio Elizalde, James E. Lidsey, Shinichi Nojiri, Sergei D. Odintsov. Phys.Lett.B574:1-7,2003,. [hep-th/0307177]

17) [Zeta function determinant of the Laplace operator on the D-dimensional ball.](#)
By Michael Bordag, B. Geyer, K. Kirsten, E. Elizalde. Commun.Math.Phys.179:215-234,1996,. [hep-th/9505157]

18) [Essentials of the Casimir effect and its computation](#)
E Elizalde, A Romeo. American Journal of Physics 59, 711-719, 1991

19) [Rigorous extension of the proof of zeta function regularization.](#)
By E. Elizalde & A. Romeo. Phys.Rev.D40:436,1989,.

20) [Multidimensional extension of the generalized Chowla-Selberg formula.](#)
By E. Elizalde. Commun.Math.Phys.198:83-95,1998,. [hep-th/9707257]

Personal Scientific Profile

My scientific career officially started on a June 29th, some years ago, during the Saint's Day celebration of my first mentor, Prof. Pedro Pascual who, over a glass of Torres *Sangre de Toro* wine, handed me a couple of references by Hans Bethe concerning the missing neutrinos problem. I completed my Master Thesis on this issue. For my PhD Thesis, written under the supervision of Prof. Quim Gomis (and Pascual, at times), I studied the compatibility of the relativistic equations of Quantum Field Theory for higher-spin particles under minimal coupling, in the light-cone reference frame. And also the relation, both ways, of this process with the corresponding one whose equations are invariant under the Galileo group (very fashionable then, owing to Levy-Leblond's papers). In particular, I studied the interconnections between the respective symmetry groups, at the classical and quantum levels, clarifying thereby some of the important problems (of technical and conceptual kind) which appeared in establishing those relations. Later, as a young Post-Doc in Hamburg, a Fellow of the Alexander von Humboldt Foundation, the study of

some other intriguing questions of the time---as quark confinement (the Savvidy model, the Callan-Dashen-Gross approach, instantons, merons and solitonic solutions in general)---brought me to consider the analytic continuation of some classes of zeta functions. They proved very useful in the search for effective models of quark confinement. In any case, confinement was also extremely hard (as the next decades would show, but, having mastered these zeta techniques, I applied them to many interesting situations in the years to come. Back in 1977, Steven Hawking had written a seminal paper on zeta regularization [Commun. Math. Phys. 55, 133] which, with near one-thousand citations, remains today the most cited reference on the subject. This is quite an accomplishment, for a work on dry mathematical-physics. A book written with my collaborators in Barcelona seventeen years later [E. Elizalde et al, *Zeta regularization techniques with applications*, World Sci, 1994], with over eight-hundred, is the *second most cited* reference ever on this same subject, and we got *three out of the six most cited* papers on that in the e-ArXive. This shows we did a good job. My 1995 Springer monograph (2nd Ed. 2012) goes third in the raw, with ca. 600 citations. It is just fair to say that, in those matters, our school—including my then students A. Romeo, S. Leseduarte, post-doc K. Kirsten, and collaborators S. Zerbini, A. Bytsenko, G. Cognola and S. Odintsov— gained solid international recognition, which resulted in some ten works over the hundred citation mark, and this in a field where it is quite hard to get mentioned. Such performance is unparalleled internationally, in this area I mean, and reflects in many ways, some of which would be difficult to quantify precisely. A couple of hints follow.

For one, I always like to recall the time when the worldwide web started and when, some years later, it became popular among American students (and professors too), and I suddenly begun to get by e-mail a rapidly growing number of questions on zeta functions, from the very elementary to extremely hard ones—also from several distinguished colleagues who already mastered the new invention. I then suddenly realized that I had become an international authority on the subject. Other proofs of my leadership in the field, as calls to be a principal speaker at relevant conferences, invitations to give seminars at top-ranked universities (including Harvard, Cambridge, Oxford, the MIT, etc.), fellowship appointments in scientific societies, memberships in Editorial Boards of various International Journals, participation in numerous panels and commissions, my becoming over the years a PI of lots of projects, an exhausting work as referee at many different instances, and so on, followed. This may be seen as a mere accumulation of tedious work during several decades but, anyhow, it has got some salt and pepper! Indeed, I keep copies of sentences written by numerous colleagues in journal articles, letters, referee reports, and other means, where they freely ponder our papers with adjectives such as (I transcribe them literally):`most beautiful', `very impressed', `will influence permanently', `extremely useful', `removed the mystery from', `another beautiful paper', `very important', `highly interesting', `a joy to read', and so on. I know this may have little value when calibrated with standard gauges, but those encouraging expressions, all of them *freely* written, do have been very valuable for me.

As a consequence of my working in such an interdisciplinary field, I produced results that are of primary importance for the mathematical community dealing with zeta and other special functions, and some other results which are more useful in specific applications, as the ones already mentioned on effective models of QFT, in particular, for the study of quantum vacuum fluctuations and their manifestations, as the Casimir force, in quite different configurations and set ups, from laboratory nano-physics to applications in cosmology and quantum gravity. From among the first, I am most proud of my seminal contributions to the *Chowla-Selberg series formula*, which did considerably extend the important results of these two authors on the subject. A simple search under this same acronym in any standard searching platform will reflect my leadership in this field. And this is work I did basically alone, as the typical mathematician. One of the generalized zeta functions, to which I extended the results of Chowla and Selberg, is now sometimes known under my name. Also, I am quite proud of the results we obtained with our Italian colleagues (mentioned above) on the *multiplicative anomaly (or defect)* of the zeta determinant of a pseudo-differential operator. Here, again, I led this block of research, albeit I do acknowledge in all its value the guidance and support of Isadore Singer, in this subject that still lies rather on the verge of standard Mathematics. Together with my collaborators I actually did pioneering work here, maybe too advanced to its time, for which reason, in my opinion, it quite probably has not been recognized in all its value yet.

Turning now to the work on zeta functions with applications in Physics, some of our most successful papers deal with the calculation of *heat-kernel coefficients* for some relevant problems, as the MIT bag

model of quark confinement and other compact configurations, and also with the computation of the contribution of the vacuum (Casimir) energy to *braneworld* models. These results could eventually provide a natural and very economic mechanism of stabilization of these configurations through quantum effects. And, finally, with several calculations of *quantum vacuum contributions* that appear in fundamental models of physics, as some specific string theories and other. I have often told how, in the middle 80's, Enrique Gaztañaga came to my office at the Diagonal Ave. in search of a subject for a Thesis; it came out that I had just participated in a GIFT Meeting at Peñíscola, where Mike Turner and Ricky Kolb had been talking, very excitedly, on the first 3D map (a slice, in fact) of the Universe (the famous CfA Survey of M. Geller and J. Huchra). Many theoretical physicists (Ed Witten, for one) immediately started work on this point map, trying to fit fundamental theories into an explanation of the large voids and strange clusters (as God's finger, the man's image, and others) of the point distribution. This was both the beginning of my involvement in cosmology and of Enrique's very successful career. From those large-scale structure analyses, counts in cells, and data reduction and compression, I was driven to *basic cosmological issues* and to Quantum Gravity ones, attracted also to these fields by the coming to Barcelona—after a post-doc stay with Professor Enrique Álvarez in Madrid—of Sergei D. Odintsov. Sergei had quite a different background, and this rendered our collaboration enormously successful over the years: he came back as a visiting scholar, at different epochs, with money I could get for him from several different sources, as the Spanish Ministry and the Catalan Government, until he finally obtained a permanent ICREA professorship.

This opened, once more, a new path in my scientific life, zeta function techniques being still useful, sometimes, to deal with some particular problems, but which mainly demanded different mathematical tools of classical and quantum gravity and specific know-how of the field, in which Sergei was an expert (together with J. Buchbinder and I. Shapiro he had just written what is one of the most successful books and basic reference on Quantum Gravity). Along these subjects, we have been working with *alternative models* to General Relativity, as phantom models, Gauss-Bonnet, and general F(R) models, with impressive successes, especially in the last half-a-dozen years, mainly together with Sin'ichi Nojiri, from Japan, and also with the Italian colleagues. On the mentioned subjects, we have *9 out of the 30 most cited* papers in the ArXives ever, 3 of which with *500 citations e/o*. In the subject *heat kernels* we have the *3ʳᵈ most cited* paper in the e-Archive. The merit here must go in big part to Sergei and Sin'ichi but, in an important way, those are also by-products of my leadership, in growing over the years a strong group on quantum physics and theoretical cosmology in Barcelona, which is now leading this field not only in Barcelona, and in the whole of Spain, but which is presently one of the most successful teams on the international scene in the above mentioned subjects. Once more, this makes me very happy.

As an important part of my profile, I must also stress that I have carried out a very extensive *outreach* activity in *bringing scientific knowledge to the society*, both in Spain and abroad. I need mention my activity as a book writer, in Spanish and Catalan (*fifteen books* in all, from high-school texts to dictionaries), articles for popular science journals, over sixty articles for *newspapers* and magazines, some including profound social discussions, as science and religion, the origin of the universe, etc., my work as a *translator* of books, of Scientific American articles and the like from several languages into Spanish and Catalan. Also, the large amount of conferences I have given at schools, town-halls, social clubs, auditoriums, etc. I have been regularly participating in *Graduierten Kollegs* and other PhD Programs in Europe (Germany, France, Italy, Spain) and America (USA, Brazil). A detailed account of my outreach activities along these lines during the last few months can be found on my webpage (just *google*: Emilio Elizalde).

Finally, another important aspect of my activity, which I am extremely proud of, is my *teaching record* at Barcelona University during twenty-five years and, very particularly, of the success of my several graduate students (and of my undergraduates, too, some of whom have written to me acknowledgment letters that I keep as a valuable treasure), accomplished in a wide spectrum of different fields: from heavy quark physics to informatics engineering, from observational cosmology to sport physics, from financial mathematics to large-scale structure, from data compression to the Casimir effect. I am very proud of the fact that some of my former students, Prof. J. Soto, Dr. A. Romeo, Prof. S. Gómez, Dr. S. Leseduarte, Dr. P. Fosalba, Dr. S.R. Hildebrandt, Dr. M. Tierz, Dr. D. Sáez-Gómez, Prof. E. Gaztañaga, and post-doc Prof. K. Kirsten, among others, are now quite well known scientists and university professors, some of them, in different countries worldwide. To wit, during my career I have been forming a good number of competent young professionals. My group in Barcelona has traditionally consisted of just four to six people, in constant

renovation every few years. This is, by the way, quite exceptional in Spain, where groups have tended to grow incestuously, by accumulation of former students. The variety of subjects dealt with in those PhD thesis and the fact that my students did leave the group after finishing work, to pursue independent careers, resulted in my being a true generator of `scientific spin-offs'. I often complain, however, about the fact that—in order to do this task—I have to devote a considerable part of my precious time to raise funds (some *250 KEUR per year* lately) from several different sources, in order to procure the means for the whole group to work decently: to travel anywhere to a good conference, to organize different activities, to buy powerful computers, to invite good scientists to Barcelona, etc. This has truly constituted an important activity and has made possible the visits and stays of many colleagues from all over the world, in special from countries with good scientific schools—but with little financial means. But this is of the essence for scientific work and I have always considered it to be a truly substantial part of my activity as well.

Prizes and honors (last 5 years).

➢ *Honor Certificate from The Academic Council of TSPU University, awarded "For many years of productive service in training of scientific and pedagogical personnel".* (1 aug 2018).

➢ *Appointment as Vice-President of the Alexander von Humboldt Association of Spain* (15 sep 2018)..

➢ *Member of the ESF College of Expert Reviewers (European Science Foundation).* (3 oct 2018).

➢ *Extraordinary Appointment from TUSUR University, Russia.* (4 aug 2018).

➢ *Appointed Editorial Board member of the international journals:* (i) *Journal of High Energy Physics, Gravitation and Cosmology*, Scientific Research Publishing Inc. (Delaware and Irvine, CA, USA) 2018. (ii) *New Horizons in Mathematical Physics,* a journal of ISAAC Sci. Pub., Kowloon, Hong Kong, 2018. (iii) *International Journal of Physics and Astronomy*, Helics Group Physics (San Diego, CA, USA) 2019. (iv) *Sci*, MDPI (Basel, Switzerland) 2019. (v) *International Journal of Cosmology, Astronomy, and Astrophysics,* IJCAA (Madridge Publishers, Pleasanton, CA 94588, USA) 2019. (vi) *American Journal of Astronomy and Astrophysics,* AJAA, SciencePG (NY 10018, USA) 2019. (vii) *Journal of Basic & Applied Sciences,* JBAS, Science Education Technology Publisher (SET, USA) 2019.

➢ *Elected for the Expert Board, Analytical Division of R&D, Materia Medica, Moscow, 129272, Russian Federation.* (1 sep 2018).

➢ *Certificate for the Best Presentation, Siberian Cosmology Days 2018.* (5 aug 2018).

➢ Appointed Academic Editor of the *Physical Science International Journal* a journal of Sciencedomain International, 207 Regent Street, London, W1B 3HH (United Kingdom).

➢ Appointed for the Editorial Board of 4 international journals: (i) *Journal of High Energy Physics, Gravitation and Cosmology*, Scientific Research Publishing Inc. (Delaware and Irvine, CA, USA); (ii) *New Horizons in Mathematical Physics,* a journal of ISAAC Sci. Pub., Kowloon, Hong Kong; (iii) *Heliyon,* an interdisciplinary journal of Elsevier Ltd, 125 London Wall, London (United Kingdom); (iv) *Symmetry*, Multidisciplinary Digital Publishing Institute (MDPI), Basel, Switzerland.

➢ Received the Medal and the Founder's Distinction Certificate of Alexander-von-Humboldt Spain.

➢ Invited to Japan through the prestigious ``JSPS Invitation Fellowship for Research in Japan", two times, in 2016 and 2017, and by the Yukawa Institute, Kyoto, in 2018.

➢ Elected Member of the ESF College of Expert Reviewers (European Science Foundation).

➢ Certificate of Appreciation, World Scientific, Connecting Great Minds, 2016.

➢ Invited as Key Speaker to the International Conference on Astrophysics and Particle Physics 2016 in Dallas, USA, by Committee Samuel C.C. Ting, NP Laureate 1976.

➢ President of the International Examination Board, Doctoral Dissertation Defense by Yevgeniya Rabochaya, Trento Univ.; First Opponent of the International Examination Board, Doctoral Dissertation Defense by Lars Husdal, NTNU Trondheim Univ.

➢ Prize as "Most Valued Reviewer of 2014" by the international journal "Annals of Physics", awarded by the Editor in Chief Frank Wilczek, Nobel Laureate (Elsevier Limited, Oxford, UK)

➢ Appointed Chief Editor de "Frontiers in Applied Mathematics and Statistics" (May, 2015).

➢ Honorary Award of the Casimir Network, awarded in the Conference "Casimir Physics 2014", Les Houches (France, April 2014)

➢ Elected Member of the "Barcelona Graduate School of Mathematics" (BGSMath, 2015)

International conferences with presentations (last 5 years).

1. Invited as Keynote speaker to the "2nd International Conference on Symmetry, 2019", Sep 01-07, 2019, Benasque, Spain.
2. Modified Gravity and Cosmology: "Opening Address: Modified Gravity and Cosmology, SDO'60" (May 8, 2019): Opening Address
3. Humboldt Colloquium "Forschung ohne Grenzen. Das Erbe Alexander von Humboldts heute" Madrid, Spanien (11.–13. April 2019): "Beyond Humboldt's Kosmos: On the discovery of the Universe expansion" (April 12, 2019): Invitated presentation
4. Theoretical Physics Dept., University of Zaragoza: "Historical approach to the Universe expansion and the concept of Big Bang" (March 21, 2019): Invited Talk
5. ICE/IEEC Pizza-Lunch Seminar, UAB: On the history of the Universe expansion: Edwin Hubble, Georges Lemaître and Vesto Slipher (March 1, 2019): Seminar
6. Cantabria Institute of Physics (IFCA): "On the meaning of Big Bang" (Feb 8, 2019): Invited Talk
7. Cosmology and the Quantum Vacuum V (CQV18), Benasque (Sep 2-8, 2018): "Zeta functions, vacuum fluctuations, and cosmology" (Sep 7, 2018): Keynote Talk, and Chairman of the Opening Session
8. International Workshop Siberian Cosmology Days 2018 (SCD2018), TUSUR, Tomsk (Russia, 4 - 5 August, 2018): "Rediscovering the origins of modern Cosmology" (Aug 4, 2018): Plenary Talk, Best Talk Prize Award
9. International Conference on Quantum Field Theory and Gravity (QFTG18), TSPU, Tomsk (Russia, July 30 - August 5, 2018): "Zeta functions, vacuum fluctuations, and cosmology" (Aug 2, 2018): Plenary Talk
10. Summer school and Workshop on the Casimir Effect: Theory and Applications, NTNU, Trondheim (Norway, June 11-16, 2018), "Zeta functions, the Casimir effect, and cosmology" (June 15): Plenary Talk
11. Gravity and Cosmology 2018, Jan 29-Mar 9, 2018 Yukawa Institute for Theoretical Physics, Kyoto University, Japan: "Zeta Functions and Cosmological Applications" (March 2, 2018): Invited Closing Talk
12. ICE/IEEC Pizza-Lunch Seminar, UAB Filling up the gaps: on the beginning of modern cosmology (February 9, 2018): Seminar
13. 3rd International Winter School-Seminar on Gravity, Astrophysics and Cosmology «Petrov School» Kazan: "On the origins of modern cosmology and a RG improved scenario" (November 30, 2017): Plenary Talk
14. Symmetry 2017-The First International Conference on Symmetry, Barcelona, Spain: "Zeta functions: symmetry and applications" (October 17, 2017): Plenary Talk
15. IV Cosmology and the Quantum Vacuum, Segovia, Spain: "Bing Bang, new singularities, and a renormalization group improved, unified accelerating scenario" (September 5, 2017): Keynote Talk
16. 4th Korean-Japan Joint Workshop on Dark Energy at KMI, Nagoya, Japan: "On the concept of Bing Bang and a renormalization group improved, unified accelerating scenario" (August 28, 2017): Plenary Talk
17. 5th CORE-U, Core of Research for the Energetic Universe, Hiroshima University, Japan: "On the concept of Bing Bang and a renormalization group improved, unified accelerating scenario" (August 22, 2017): By invitation
18. Yukawa Institute for Theoretical Physics, Kyoto University, Japan: "On the concept of Bing Bang and a renormalization group improved, unified accelerating scenario" (August 4, 2017): By invitation
19. Kobayashi-Maskawa Institute, Nagoya University, Japan: "Our Universe had (probably) an origin: Big Bang, cosmic singularities and quantum fluctuations" (August 2, 2017): By invitation
20. Università degli Studi di Trento: "Cosmology and Zeta Functions: XXV years Trento-Barcelona colab" (June 1, 2017), Sergio Zerbini's Institute's Fest: By invitation
21. ICE/IEEC Pizza-Lunch Seminar, UAB The Universe had (probably) an origin: Big Bang, cosmic singularities and quantum fluctuations (December 16, 2016): Seminar
22. CSIC Barcelona "Science Mondays": "The Universe had (probably) an origin: Big Bang, cosmic singularities and quantum fluctuations" (Oct 17, 2016): By invitation
23. International Conference on Cosmology and the Quantum Vacuum III (CQV16), Benasque (Sep 4-10, 2016): "The Universe had (probably) an origin: on singularity theorems and quantum fluctuations" (Sep 7, 2016): Chairman of the Opening Session
24. Università degli Studi di Trento: "The Universe had (probably) an origin: on the Theorem of Borde-Guth-Vilenkin" (July 26, 2016): Institute's Colloquium, by invitation

25. International Conference on "Casimir and van der Waals Physics: Progress and Prospects", IAS HKUST University Hong Kong (April 25-28, 2016)Leading Discussion Session: "The Casimir Force and the Universe" (April 28, 2016): By invitation
26. Catalan Physical Society, Conference Light as wave and particle: Albert Einstein and Max Planck (January 26, 2016): By invitation
27. VII CPAN Days, Presentation Technology Transfer Activities @ ICE-CSIC (December 1, 2015): Invited Talk
28. ICE/IEEC Pizza-Lunch Seminar, UAB On cosmology, infinities, and zeta functions (October 9, 2015): Seminar
29. III Russian-Spanish Congress, Santiago de Compostela (8-11 Sep 2015) Quantum Vacuum & Cosmology with a Background of Zeta Functions (Sep 11, 2015): By invitation
30. Università degli Studi di Trento: Data vs Theory on the light of the B2KP new results (July 23, 2015): Seminar
31. MITP Workshop "Quantum Vacuum and Gravitation" Mainz, Germany (June 22-26, 2015) Zeta functions, the Chowla-Selberg formula, and the Casimir effect (June 23, 2015): By invitation
32. Iberian Gravitational Wave Meeting, UPC Barcelona (12-14 May, 2015) The Big Bang Theory: historical annotations (May 12, 2015): Talk
33. International University of Catalonia, Barcelona, Spain Elements of modern cosmology: from the Big Bang to the future Universe (April 17, 2015): By invitation
34. Humboldt Kolleg, Fez, Morocco (March 4-6, 2015) Aspects of Modern Cosmology: Historical Insights and Open Questions (March 4, 2015): By invitation
35. ICE/IEEC Pizza-Lunch Seminar, UAB Issues and results of B2P in the context of the Big Bang model (January 16, 2015): Seminar
36. Dartmouth EE Just Scholars Dinner Talk Historical Issues of Modern Cosmology (January 7, 2015): By invitation
37. Dartmouth Physics and Astronomy: Cosmology Seminar Cosmology, B2P, and quantum fluctuations (January 6, 2015): By invitation
38. South Africa Gravity Society meeting (SAGS 2014) & George Ellis 75, Cape Town, South Africa (24-25 Nov 2014): BICEP2 and quantum fluctuations" (Nov 24, 2014): Invited talk
39. International Conference Dark Side of the Universe DSU2014, Cape Town, South Africa (17-21 Nov 2014): Vacuum fluctuations and non-local gravity models (Nov 20, 2014): Talk
40. International Conference on Cosmology and the Quantum Vacuum (CQV14), Benasque The BIG BANG, BICEP2, and Quantum Fluctuations (September 8, 2014): Talk
41. International Congress of Mathematicians ICM 2014, Seoul, Korea Non-local Lagrangian model for modified quantum gravity (August 20, 2014): Talk
42. International Congress of Mathematicians ICM 2014, Seoul, Korea Extensions of the Chowla-Selberg series formula with physical applications (August 14, 2014): Talk
43. Università degli Studi di Trento: BICEP2, inflation and quantum fluctuations (July 25, 2014): Seminar
44. ICE/IEEC Pizza-Lunch Seminar, UAB (May 16, 2014): Seminar
45. Casimir Physics 2014, Les Houches (France): Quantum Vacuum & Cosmology on a Background of Zeta Functions (March 30-April 4, 2014): Lectures

Publications (last 5 years).

Papers in international journals.

1) E. Elizalde, A.V. Timoshkin, Viscous fluid holographic inflation, Eur.Phys.J. C79 (2019) no.9, 732. arXiv:1908.08712 [gr-qc]. 10.1140/epjc/s10052-019-7244-z.

2) Emilio Elizalde, Martiros Khurshudyan, Wormholes with $\rho(R,R^{\prime})$ matter in $f(R, T)$ gravity, Phys.Rev. D99 (2019) no.2, 024051. arXiv:1812.10840 [gr-qc]. 10.1103/PhysRevD.99.024051.

3) Emilio Elizalde, Martiros Khurshudyan, Wormhole formation in $f(R,T)$ gravity: Varying Chaplygin gas and barotropic fluid, Phys.Rev. D98 (2018) no.12, 123525. arXiv:1811.11499 [gr-qc]. 10.1103/PhysRevD.98.123525.

4) Emilio Elizalde, Martiros Khurshudyan, Swampland criteria for a dark energy dominated universe ensuing from Gaussian processes and H(z) data analysis, Phys.Rev. D99 (2019) no.10, 103533. arXiv:1811.03861 [astro-ph.CO]. 10.1103/PhysRevD.99.103533.

5) Emilio Elizalde, Sergei D. Odintsov, Tanmoy Paul, Diego Sáez-Chillón Gómez, Inflationary universe in $F(R)$ gravity with antisymmetric tensor fields and their suppression during its evolution, Phys.Rev. D99 (2019) no.6, 063506. arXiv:1811.02960 [gr-qc]. 10.1103/PhysRevD.99.063506.

6) Emilio Elizalde, Reasons in Favor of a Hubble-Lemaître-Slipher's (HLS) Law, Symmetry 11 (2019) no.1, 35. arXiv:1810.12416 [physics.hist-ph]. 10.3390/sym11010035.

7) E. Elizalde, S.D. Odintsov, V.K. Oikonomou, Tanmoy Paul, Logarithmic-corrected R^2 Gravity Inflation in the Presence of Kalb-Ramond Fields, JCAP 1902 (2019) 017, arXiv:1810.07711 [gr-qc]. 10.1088/1475-7516/2019/02/017.

8) Emilio Elizalde, Martiros Khurshudyan, Shin'ichi Nojiri, Cosmological singularities in interacting dark energy models with an $\omega(q)$ parametrization, Int.J.Mod.Phys. D28 (2018) no.01, 1950019. arXiv:1809.01961 [gr-qc]. 10.1142/S0218271819500196.

9) Felipe Contreras, Norman Cruz, Emilio Elizalde, Esteban González, Sergei Odintsov. Linking little rip cosmologies with regular early universes, Phys.Rev. D98 (2018) no.12, 123520. arXiv:1808.06546 [gr-qc]. 10.1103/PhysRevD.98.123520.

10) Jaume de Haro, Llibert Aresté Saló, Emili Elizalde, Cosmological perturbations in a class of fully covariant modified theories: Application to models with the same background as standard LQC, Eur.Phys.J. C78 (2018) no.9, 712. arXiv:1806.07196 [gr-qc]. 10.1140/epjc/s10052-018-6193-2.

11) E. Elizalde, S.D. Odintsov, E.O. Pozdeeva, S.Yu. Vernov, De Sitter and power-law solutions in non-local Gauss–Bonnet gravity, Int.J.Geom.Meth.Mod.Phys. 15 (2018) no.11, 1850188. arXiv:1805.10810 [gr-qc]. 10.1142/S0219887818501888.

12) Emilio Elizalde, "All that Matter … in One Big Bang …", &Other Cosmological Singularities, Galaxies 6 (2018) no.1, 25. arXiv:1801.09550 [physics.hist-ph]. 10.3390/galaxies6010025.

13) E. Elizalde, M. Khurshudyan, Cosmology with an interacting van der Waals fluid, Int.J.Mod.Phys. D27 (2017) no.04, 1850037. arXiv:1711.01143 [gr-qc]. 10.1142/S0218271818500372.

14) I. Brevik, E. Elizalde, S.D. Odintsov, A.V. Timoshkin, Inflationary universe in terms of a van der Waals viscous fluid, Int.J.Geom.Meth.Mod.Phys. 14 (2017) no.12, 1750185. arXiv:1708.06244 [gr-qc]. 10.1142/S0219887817501857.

15) E. Elizalde, S.D. Odintsov, L. Sebastiani, R. Myrzakulov, Beyond-one-loop quantum gravity action yielding both inflation and late-time acceleration, Nucl.Phys. B921 (2017) 411-435. arXiv:1706.01879 [gr-qc]. 10.1016/j.nuclphysb.2017.06.003.

16) Yi Zhong, Emilio Elizalde, de Sitter and power-law solutions in some models of modified gravity, Mod.Phys.Lett. A31 (2016) no.38, 1650221. arXiv:1612.04179 [gr-qc]. 10.1142/S0217732316502217.

17) Emilio Elizalde, Luis G. T. Silva, Inhomogeneous imperfect fluid inflation, Astrophys.Space Sci. 362 (2017) no.1, 7. arXiv:1611.08255 [gr-qc]. 10.1007/s10509-016-2988-5.

18) I. Brevik, E. Elizalde, V.V. Obukhov, A.V. Timoshkin, Inflationary universe with a viscous fluid avoiding self-reproduction, Annalen Phys. 529 (2017) no.1-2, 1600195. arXiv:1609.04953 [gr-qc]. 10.1002/andp.201600195.

19) Emilio Elizalde, Andrey N. Makarenko, Singular inflation from Born–Infeld-f (R) gravity, Mod.Phys.Lett. A31 (2016) no.24, 1650149. arXiv:1606.05211 [gr-qc]. 10.1142/S0217732316501492.

20) Alvaro de la Cruz-Dombriz, Emilio Elizalde, Sergei D. Odintsov, Diego Sáez-Gómez, Spotting deviations from R^2 inflation, JCAP 1605 (2016) no.05, 060. arXiv:1603.05537 [gr-qc]. 10.1088/1475-7516/2016/05/060.

21) Jaume de Haro, Emilio Elizalde, Inflation and late-time acceleration from a double-well potential with cosmological constant, Gen.Rel.Grav. 48 (2016) no.6, 77. arXiv:1602.03433 [gr-qc]. 10.1007/s10714-016-2072-z.

22) Anna Escofet, Emilio Elizalde, Gauss–Bonnet modified gravity models with bouncing behavior, Mod.Phys.Lett. A31 (2016) no.17, 1650108. arXiv:1510.05848 [gr-qc]. 10.1142/S021773231650108X.

23) E. Elizalde, S.D. Odintsov, E.O. Pozdeeva, S. Yu. Vernov, Cosmological attractor inflation from the RG-improved Higgs sector of finite gauge theory, JCAP 1602 (2016) no.02, 025. arXiv:1509.08817 [gr-qc]. 10.1088/1475-7516/2016/02/025.

24) Emilio Elizalde, Sergiu I. Vacaru, Einstein spaces modeling nonminimal modified gravity, Eur.Phys.J.Plus 130 (2015) no.6, 119. arXiv:1506.09148 [gr-qc]. 10.1140/epjp/i2015-15119-0.

25) Jaume Haro, Emilio Elizalde, Gravitational particle production in bouncing cosmologies, JCAP 1510 (2015) no.10, 028. arXiv:1505.07948 [gr-qc]. 10.1088/1475-7516/2015/10/028.

26) Rio Saitou, Emilio Elizalde, A method for the construction of stable Galileon models consistent with the Planck data results, JCAP 1509 (2015) no.09, 001. arXiv:1505.06419 [hep-th]. 10.1088/1475-7516/2015/09/001.

27) Emilio Elizalde, Jaume Haro, Sergei D. Odintsov, Quasimatter domination parameters in bouncing cosmologies, Phys.Rev. D91 (2015) no.6, 063522. arXiv:1411.3475 [gr-qc]. 10.1103/PhysRevD.91.063522.

28) Guido Cognola, Emilio Elizalde, Sergio Zerbini, Functional Determinant of the Massive Laplace Operator and the Multiplicative Anomaly, J.Phys. A48 (2015) no.4, 045203. arXiv:1408.1766 [hep-th]. 10.1088/1751-8113/48/4/045203.

29) E. Elizalde, S.D. Odintsov, E.O. Pozdeeva, S. Yu. Vernov, Renormalization-group improved inflationary scalar electrodynamics and SU(5) scenarios confronted with Planck 2013 and BICEP2 results, Phys.Rev. D90 (2014) no.8, 084001. arXiv:1408.1285 [hep-th]. 10.1103/PhysRevD.90.084001.

30) E. Elizalde, V.V. Obukhov, A.V. Timoshkin, Inhomogeneous viscous dark fluid coupled with dark matter in the FRW universe, Mod.Phys.Lett. A29 (2014) no.25, 1450132. arXiv:1406.7653 [gr-qc]. 10.1142/S0217732314501326.

31) Artyom V. Astashenok, Emilio Elizalde, Artyom V. Yurov, The cosmological constant as an eigenvalue of a Sturm-Liouville problem, Astrophys.Space Sci. 349 (2014) 25-32. arXiv:1212.4268 [astro-ph.CO]. 10.1007/s10509-013-1606-z.

32) E. Elizalde, K. Kirsten, N. Robles and Floyd Williams, Zeta functions on tori using contour integration, International Journal of Geometric Methods in Modern Physics 12, 1550019 (2015) 28p.

33) E. Elizalde and S.I. Vacaru, Effective Einstein cosmological spaces for non-minimal modified gravity, General Relativity and Gravitation 47, 74 (2015). DOI 10.1007/s10714-015-1905-5

Books.

34) Diego Saez-Chillon Gomez and Emilio Elizalde, Eds., Proceedings of the 4th Workshop on Cosmology and the Quantum Vacuum, Segovia, Spain, September 4-8, 2017. Published in Galaxies 5 (2017) no.4, Galaxies 6 (2018) no.1, Conference: C17-09-04.1. DOI:10.3390/galaxies6010025

Book chapters and other papers.

35) Emilio Elizalde, On how the Cyberspace arose to fulfill theoretical physicists' needs and eventually changed the World: Personal recallings and a practitioner's perspective. In J. Martin Ramirez and Luis A. Garcia-Segura Eds., Cyberspace: Risks and Benefits for Society, Security and Development (Springer Verlag, Berlin, 2017), pp. 3-22. ISBN 978-3-319-54974-3, DOI 10.1007/978-3-319-54975-0. arXiv:1701.04765 [physics.pop-ph].

36) Emilio Elizalde, Zeta Functions: Symmetry and Applications MDPI Proc. 2 (2018) no.1, 38. 10.3390/proceedings2010038.

37) E. Elizalde, E.O. Pozdeeva, S. Yu. Vernov, Cosmological models with non-minimally coupled scalar fields and renormalization-group inflationary scenarios, Gravitation, Astrophysics, and Cosmology, Vitaly Melnikov and Jong-Ping Hsu, Eds. (World Sci, Singapore, 2016) pp. 269-274. 10.1142/9789814759816_0055.

38) Emilio Elizalde, On a family of non-local gravity models, AIP Conf.Proc. 1606 (2015) no.1, 304-12.10.1063/1.4891146.

39) E. Elizalde, On the unexpected cosmic darkness, Revista Internacional de los Estudios Vascos (RIEV, 2016), in Spanish.

40) E. Elizalde, On a family of non-local gravity models, 2nd Russian-Spanish Congress on Particle and Nuclear Physics at all scales and Cosmology, 01-04 Oct 2013. Saint Petersburg, Russia, AIP Conf. Proc. 1606 (2014) 304-312. CNUM: C13-10-01. DOI: 10.1063/1.4891146.

41) E. Elizalde, E. O. Pozdeeva and S. Yu. Vernov, Cosmological models with non-minimally coupled scalar fields, in Gravitation, Astrophysics, and Cosmology, Proceedings of the Twelfth Asia-Pacific International Conference (World Sci, NJ, 2016), pgs. 269-274. ISBN 978-981-4759-80-9. doi:10.1142/9789814759816 0055, http://www.worldscientific.com/doi/10.1142/9789814759816 0055 82. Emilio Elizalde, Zeta Functions: Symmetry and Applications, Published in MDPI Proc. 2, no.1, 38 (2018). DOI: 10.3390/proceedings2010038, Conference: C17-10-16.4 Proceedings.

42) A.A. Bytsenko and E. Elizalde, On Partition Functions of Hyperbolic Three-Geometry and Associated Hilbert Schemes, in K. Alladi, G.V. Milovanovic and M. Th. Rassias, Eds., Analytic Number Theory, Approximation Theory and Special Functions (Springer, New York, 2014), pp 131-148. ISBN 978-1-4939-0258-3.

43) E. Elizalde, Presentacion a Nicanor Ursua Lezaun, in Documentos Humboldt 16: La dinámica regional en el desarrollo cientifico europeo. Juan-Luis Gomez Colomer, Ed. (I.D.O.E., Alcala de Henares, 2017) ISBN 978-84-8187-262-0. Pgs. 161-165.

44) E. Elizalde, Los nuevos roles de la Ciencia en el siglo XXI: "Roles y Retos de la Investigacion en Cosmologia y Fisica-Matematica: el decisivo papel de Europa", in Juan-Luis Gomez Colomer, Ed. XXV Jahre Alexander von Humboldt Spanien (I.D.O.E., Alcala de Henares, 2017) ISBN 978-84-8187-256-9. Pgs. 289-296.

45) E. Elizalde, Presentacion a Pedro Miguel Echenique Landiribar, in Documentos Humboldt 17: Ciencia, Innovacion y Cultura: Los Tres Pilares del Progreso. Juan-Luis Gomez Colomer, Ed. (I.D.O.E., Alcala de Henares, 2018) ISBN 978-84-8187-267-5. Pgs. 33-42.

46) E. Elizalde, Extracto comentado de la conferencia La Sublime Utilidad de la Ciencia Inutil de Pedro M. Echenique, in Documentos Humboldt 17: Ciencia, Innovacion y Cultura: Los Tres Pilares del Progreso. Juan-Luis Gomez Colomer, Ed. (I.D.O.E., Alcala de Henares, 2018) ISBN 978-84-8187-267-5. Pgs. 43-53.

Preprints.

47) E. Elizalde and M. Khurshudyan, Wormhole models in f(R,T) gravity, IJMPD submitted.

48) Emilio Elizalde, Nisha Godani, Gauranga C. Samanta, Cosmological dynamics in R^2 gravity with logarithmic trace term. arXiv:1907.05223 [physics.gen-ph].

49) D.F. Jimenez, L.N. Granda and E. Elizalde, Cosmology in a model with Lagrange multiplier, and Gauss-Bonnet and non-minimal kinetic couplings, EPJC submitted.

Participation in present and Future Projects.

1) Project (DGICYT) "Modelos cosmológicos, energía del vacío y funciones zeta" ("Cosmological Models, the Vacuum Energy, and Zeta Functions"), Reference: FIS2016- 76363-P; 1-1-2017 to 29-09-2020.
2) Consolidated Group of Generalitat de Catalunya: "Cosmologia i Física Teòrica" ("Cosmology and Theoretical Physics"). Reference: 2017SGR247; 1-1-2017 to 31-12-2020.
3) Presently a member of two European COST Actions: CA15117: CANTATA and CA16214: PHAROS.
4) PI of a DGICYT National Project application, openings of 2019, for a four-year project FIS2019; Dec 2019 to Dec 2023.
5) Proposed by TUSUR University (Russian Federation) as international PI applicant to the top-ranked projects from the Government of the Russian Federation (7th stage), for "State support of scientific research conducted under supervision of leading scientists in Russian institutions of higher education, 2019". Project title: "Theoretical and observational consequences of modified gravity theories". Registration number: 2019-220-07-7944; 1-1-2020 to 31-12-2023.