Date of the CVA	15/6/16

Part A. PERSONAL DATA

Name and surnames	Joseba Zubia Zaballa		
DNI/NIE/passport	22732400M	Edad	50
Researcher's ID number		Researcher ID	
		Orcid code	0000-0002-9137-1733

A.1. Current professional state

Organism	Universidad del País Vasco		
Department/Centre	ETSI de Bilbao		
Address	Alameda de Urkijo s/n		
Phone	946014138	e-mail	joseba.zubia@ehu.es
Professional category	University Professor	Starting date	2002
UNESCO code	220905, 220906, 220921, 220923, 220909, 331104		
Key words	Plastic optical fiber, optical sensors, multimode fiber, photonics		

A.2. Academic training *(title, institution,date)*

Degree /PhD	University	Year
Degree in Physics	Universidad del País Vasco	1989
PhD in Physics	Universidad del País Vasco	1993

A.3. General indicators of the quality of the scientific output

The applicant has 4 positive six-year research activity evaluations (the last one corresponds to 2007-2012), 6 PhD theses supervised by him in the last 10 years (3 international ones), 1555 in the total amount of citations, an average amount of citations per year of 144, an h-index ≥18, and 86 papers published in JCR magazines, most of them being magazines of the first quartile.

	Google Scholar		
Citation indices	**All**	**Since 2011**	**Average**
Citations	*1555*	*801*	*144 per year*
h-index	*20*	*14*	
I10-index	*43*	*17*	

The invited paper "Plastic optical fibers: An introduction to their technological processes and applications, by J Zubia and J Arrue - Optical Fiber Technology, 2001 – Elsevier" has been **cited 340 times** since 2001.

Part B. FREE SUMMARY OF THE CURRICULUM

INVESTIGATION: The applicant has **4 positive six-year** research activity evaluations (the last one corresponding to the evaluation of 2012). He has been co-author of **90 publications** in Peer-Reviewed JCR journals of the first or second quartiles (most of them first) in the field of his speciality (**12 are invited papers**); he also has 185 papers presented on international congresses (which include **26 invited presentations)**, 31 papers presented on national congresses, and 3 patents. He has participated in **67 research projects**, both national and European ones, of which he has been **Principal Investigator (PI) in 45**. He has also participated in **23 I+D contracts with companies,** of which he has been PI in 18; he has taken part in in **20 activities of transfer to the end-product stage (PI in 14 of them)**, in a network of excellence of the European Union, called COST Action TD1001- Novel and Reliable Optical Fibre Sensor Systems for Future Security and Safety Applications (OFSESA), and in a network of excellence of Spain, called Consolider ULTRAFAST-FIS2014-59264-REDC. He got several predoctoral stays in Göteborg (Chalmers Institute of Technology, Sweden) and several postdoctoral ones in Nürenberg (POFAC, Alemania), where he usually goes several weeks of every year. He has been evaluator in 21 different Peer-Reviewed JCR journals in the field of his speciality. He is member of Scientific

Commitees for the annual organization of 2 international congresses and of a national one. He has been in the Local Organising Committees of an international congress (POF2011) and of a national one (OPTOEL2007), and, at present, he is member of the Local Organising Committees of ECOC2015 and of EWSHM2016. He received the **Euskoiker Research Foundation's award of 2010** in the field of Engineering and Technology, and he was given the Extraordinary Doctorate Award in 1993 for his thesis and the Plastic Optical Fiber Award in 2015.

ACADEMIC TRAINING: The applicant was given a predoctoral grant during his PhD work. He got the title of PhD in Physics from the University of the Basque Country (UPV/EHU) and his thesis was given the Extraordinary Doctorate Award. He got predoctoral stays in Göteborg (liquid crystals, Chalmers Institute of Technology, Sweden) and postdoctoral ones in Nürenberg (optical fibers and optical sensors, POFAC, Alemania).

TEACHING ACTIVITIES: The applicant has 5 five-year periods of teaching activity, all of them positively evaluated. He has lectured in more than 20 subjects in all education cycles, including 6 masters' courses or doctoral programs of certified quality. At present, he lectures the subject "Metodología de la investigación y Fotónica industrial" in the Telecommunications master's course, the subject "Interferometría Óptica" in the Aerospatial master's course, and the subject of optical sensors in a course that is lectured at the Georg Ohm University of Nurenberg, whose title is "Mecatronics (optical sensors)". He has supervised 6 PhD theses, 4 of them international ones, and, at present, he is the supervisor of 3 PhD students. He has also supervised more than 70 Final Degree Projects. He has participated in divulging activities about light, about electromagnetic waves and health, about optical fibres, about lasers, etc., by giving speeches in TV or radio programmes. This year, which is the International Year of Light, he is participating in divulging activities about light. He is also a member of the European project **Photonics Explorer**, which divulges Science and Technology among students and teachers of the secondary school.

MANAGEMENT: he has been PI of the Applied Photonics Group from its inception, in which nowadays there are 18 researchers (12 of them PhD), as can be seen in http://appliedphotonicsbilbao.org/. Now he is PI of a joint project that is being applied for with MINECO and 4 more partners, which is expected to be funded by the local government and by some companies. He has been the secretary of the Department of Electronics and Telecommunications, at the ETSI of Bilbao, from 1995 to 2001. He has been the president of the PhD Committee for 10 years (1997-2006) and also the president of the "Research Sufficiency Evaluation Committee" from 2002 to 2012. He has been vice-president of the Optoelectronics Committee from July 2013. He participates in 9 national Quality Agencies or Accreditation Agencies (ANEP, ANECA,..) and in international ones (Hong-Kong). He has organized many courses with national and international lecturers about Optical Commmunicatons, Nano-optics, Meta-materials and Plasmons. He is a LASER SAFETY OFFICER at University. He received a 15 hour laser-safety course to complete his training. **Chairman** in international congresses in more than 40 occasions (POF, ICTON, MOC, ECOC, EWOFS,…).Coordinator for more than 20 foreign researchers in our laboratory in the last 10 years, with stays of several months in all cases. **President of the Spanish Society of Optoelectronics 2015-**

Part C. RELEVANT MERITS

C.1. Some recent papers on SHM (mainly Aeronautics)

1. Comparing Polymer Optical Fiber (POF), fiber Bragg grating and traditional strain gauge for aircraft structural health monitoring"Javier Gomez, Joseba Zubia, Gerardo Aranguren, Jon Arrue, Hans Poisel and Idurre Saez, Applied Optics, Vol. 48, Nº8, 2009

2. Use of a novel fiber optical strain sensor for monitoring the vertical deflection of an aircraft flap, Gaizka Durana, Marlene Kirchhof, Michael Luber, Idurre Sáez de Ocáriz, Hans Poisel, Joseba Zubia, and Carmen Vázquez, IEEE Sensors Journal, 2009, vol. 9, n. 10, p. 1219-1225

3. Fiber Bragg Gratings, IT Techniques and Strain Gauge Validation for Strain Calculation on Aged Metal Specimens, Ander Montero, Idurre Saez de Ocariz , Ion Lopez, Pablo Venegas, Javier Gomez, and Joseba Zubia, Sensors, Vol. 11, 1088-1104, 2011

4. Assessment of an LPG mPOF for strain sensing, G. Durana, J. Gómez, G. Aldabaldetreku, Joseba Zubia, Ander Montero, Idurre Saez de Ocariz, IEEE Sensors, Vol. 12, Nº8, 2012

5. An optical fiber bundle sensor for tip clearance and tip timing measurements in a turbine rig, I. Garcia, J. Beloki, J. Zubia, G. Aldabladetreku, M.A. Illarramendi, and F. Jiménez, Sensors, Vol. 13,7385-7398, 2013.

6. Influence of humidity of fiber bragg grating sensors, A. Montero, G. Aldabaldetreku, G. Durana, I. Jorge Aldave, I. Sáez<de Ocariz and J. Zubia, Advances in materials Science and Engineering, Vol 2014 Article ID 405250, http://dx.doi.org/10.1155/2014/405250

7. Locally pressed photonic crystal fiber interferometer for multiparameter sensing, J. Villatoro, V. Minkovich and J. Zubia, Optics letters, **39, Nº9,** 2580-2583, 2014

8. Locally pressed photonic crystal fiber interferometer for multiparameter sensing, J. Villatoro, V. Minkovich and J. Zubia, Optics letters, 39, Nº9, 2580-2583, 2014.

9. (Invited) Optical fiber sensor boosts aircraft engine monitoring, J. Zubia, C. Vázquez and J. Mateo, SPIE NEWSROOM, , 2014

10. (Invited) Optical Fiber Sensors for Aircraft Structural Health Monitoring, Iker García, Joseba Zubia , Gaizka Durana, Gotzon Aldabaldetreku, María Asunción Illarramendi and Joel Villatoro SENSORS, *15(6)*, 15494-15519, 2015

11. Different configurations of a reflective intensity-modulated optical sensor to avoid modal noise in tip-clearance measurement, I. García, J. Zubia, A. Berganza, J. Beloki, J. Arrue, M. A. Illarramendi, J. Mateo and C. Vazquez, IEEE Journal of Lightwave Technology, 2015, DOI 10.1109/JLT.2015.2397473.

12. Photonic crystal fiber interferometric force sensor, J. Villatoro, V. Minkovich and J. Zubia, IEEE Photonic Technology letters, Vol. 7, N11, April, 2015, pp. 1181-1184.

13. Ultrasensitive vector bending sensor based on multicore optical fiber, J. Villatoro, AMY VAN NEWKIRK, ENRIQUE ANTONIO-LOPEZ, JOSEBA ZUBIA, AXEL SCHÜLZGEN, AND RODRIGO AMEZCUA-CORREA, Optics letters, Vol. 41, No. 4 / February 2016

14. (invited) New perspectives in photonic crystal fibre sensors, Joel Villatoro and Joseba Zubia, Optics and Lasers Technology, Volume 78, Part A, April 2016, Pages 67–75.

C.2. Conference papers on SHM (>50). INVITED TALKS in the last 4 years

1. CONFERENCE: ICTON2013-15th International conference on trasnparent optical networks, J. Zubia, J. Mateo, M.A. Losada, G. Durana, G. Aldabaldetreku, y MA Illarramendi, Optical fiber sensors for Structural health monitoring in airplanes, 2013

2. CONFERENCE: 22nd International Conference on Plastic Optical Fibers and Applications J. Zubia, G. Aldabaldetreku, MA Illarramendi y G. Durana, Low-cost current and tip timing-tip clearance measurement sensors base on plastic optical fibers, Buzios, Brasil, 2013

3. CONFERENCE: 2nd International Conference on Advanced Photonic Polymers (ICAPP) 2013 AUTORES: J. Zubia, G. Aldabaldetreku, MA Illarramendi y G. Durana, POF sensors, Yokohama, Japan, 14-15 de Noviembre 2013

4. CONFERENCE: ICTON2014-16 International conference on trasnsparent optical networks, J. Zubia, I. García, A. Berganza, J. Beloki, J. Arrue, and J. Mateo, Improvements in the design of an optical sensor for tip-clearance measurements in turbines, Graz, Austria, 6-10 de Julio 2014

5. CONFERENCE: 20th IMEKO TC-4 International symposium on research on electrical and electronic measurement for the economic upturn, Joel Villatoro, Vladimir P. Minkovich, Joseba Zubia, Photonic crystal fibre mode interferometers as multi-sensors
Benevento, Italy, 15-17 de Septiembre 2014

7. CONFERENCE: Latin American Optics and Photonics (LAOP) Conference AUTORES: Joel Villatoro, Vladimir P. Minkovich, D. Monzón y J. Zubia, Lateral Force Sensor Based on a Photonic Crystal Fiber Mode Interferometer" Cancún, Mexico, 11/2014

8. CONFERENCE: 23rd International Conference on Plastic Optical Fibers and Applications, J. Zubia, G. Durana, G. Aldabaldetreku1, O. Arrizabalaga, and M. A. Illarramendi, MECHANICAL SENSING WITH MICROSTRUCTURED POF Yokohama, Japón, 8-10 de Octubre 2014

9. CONFERENCE:ICTON2015-17th International conference on trasnparent optical networks, Iker García, Joseba Zubia, Josu Beloki, Gotzon Aldabaldetreku, Gaizka Durana, María Asunción Illarramendi, Optical Tip Clearance Measurements for Rotating Disks Characterization, Budapest, Hungary Fecha: 5-9 de Julio 2015

10. CONFERENCE: 24th International Conference on Plastic Optical Fibers and Applications, J. Zubia, I. García, J. Villatoro, M.A. Illarramendi, J. Mateo and C. Vázquez, POF Sensors for Aeronautical Engine Health Monitoring, Nüernberg, Germany, 2 1-24 de Septiembre 2015

12. CONFERENCE: BIT´s 2nd World Congress of Smart materials, J. Zubia, M.A. Illarramendi, J. Villatoro, G. Durana and G. Aldabladetreku, POF for sensing applications, Singapore, 4-6 de Marzo de 2016

13. CONFERENCE: SPIE Photonics Europe 2016, Joel Villatoro, J. Enrique Antonio-Lopez, Amy Van Newkirk, Joseba Zubia, Axel Schülzgen, Rodrigo Amezcua Correa, Supersensitive sensors based on multicore optical fibres, Brussels, Bélgica, 3-7 de Abril 2016

14. CONFERENCE: OFC/NFOEC 2016, Iker Garcia, J. Zubia, J. Villatoro, M.A. Illarramendi, J. Mateo and C.Vázquez, POF Sensors for Aircraft Structures and Engine Monitoring, Anaheim, Los Ángeles, USA, 22-26 de Marzo, 2016

15. CONFERENCE: OSA/Optical sensors, J. Zubia, **Optical Fiber Sensors in Airplanes**, Vancouver, Canada, July, 2016

16. CONFERENCE:ICTON2016-18th International conference on trasnparent optical networks, I. García, R. Przysowa, J. Zubia, J. Villatoro, J. Mateo, and C. Vázquez, Tip timing measurements for structural health monitoring in the first stage of the compressor of an aircraft engine, Trento, Italy, 2016.

C.3. Last proyects on SHM (2009-2016) as principal investigator

1. AIRHEM: Aircraft Intelligent and robust health monitoring" ETORTEK 2008-Basque Goverment, 2008-2010
2. Fabrication of plastic optical fibers, Biscay Goverment, 1-1-2009/31-12-2010.
3. Comparing optical fiber Sensors and traditional Sensors for SHM under real flight conditions, Basque Goverment, 2009-2010

4. Modelling, fabrication and characterization of new polymer optical fibers for SHM and sensing, Ministry of Science and technology: 2010-2012.
5. Health monitoring para transporte inteligente, Basque Goverment , 2011-13
6. Health monitoring and advanced instrumentation applied to unmanned aereal platform (S-PE12CA001) Basque Goverment, 2012-13
7. AISHA II, Aircraft Integrated Strcutural Health Assessment, VII Framework 1-3-2009/31-3-2013.
8. ETORTEK-2014/AIRHEM III- Aircraft Intelligent and robust health monitoring, Basque Goverment, 2014-15
9. Plastic optical fibers: fabrication and application to sensing, TEC2012-37983-C03-01. 2013-2015
10. Health monitoring for advanced fabrication of Aeronautical components ELKARTEK-15/08, Basque Goverment, 2015
11. Study and assessment of deformations and vibrations of the Bizkaia Bridge by menas of optical sensors, Bilbao Port authority, 2016

b) As Associated Investigator:

12. COST Action TD1001- Novel and Reliable Optical Fibre Sensor Systems for Future Security and Safety Applications (OFSESA), Sinead.O'Keeffe, 2011-2014.

C.4. Achieved Research Contracts on SHM

Participant companies: GAMESA, SENER, LEGRAND, ARTECHE HERMANOS, ITP, EMDEP, IBERDROLA, DIKAR
Participant I+D centres: TEKNIKER, ROBOTIKER, TECNALIA, …

1. Design of a sensor system for the measurement of the blade tip clearance in aircraft turbines, 2009-2010, SENER
2. Innovation on advanced composites and optimized read-end. AERNOVA, 2009-2010
3. New techniques of structural monitoring of wind blades based on optical fibers, Gamesa and Tekniker, 2010
4. Unmanned systems oriented to null environmental impact, AERNOVA, 2010-2012……