2018

SCIENCE NEWS YEARBOOK

Campus de Gandia de la Universitat Politècnica de València

UNIVERSITAT POLITÈCNICA DE VALÈNCIA

CAMPUS DE GANDIA

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GREETINGS FROM THE DIRECTOR

Campus Gandia of the Universitat Politècnica de Valencia has dedicated 24 years to providing education and talent, research and up-to-date knowledge that have all had an impact on our environment. Thousands of undergraduate and graduate students have graduated from the Campus Gandia and are part of our family. Hundreds of researchers have studied at our Campus, representing us all over the world. Campus Gandia has gone from dream to reality, evolving with its environment and helping to improve and protect it.

Our yearbook of scientific news is a small sampling of all the efforts and contributions made by our Campus Gandia, which we are very proud of and want to share with you. With this yearbook we want to share with you our enjoyment of Science, Communication, Tourism, Technology, and Environmental Protection.

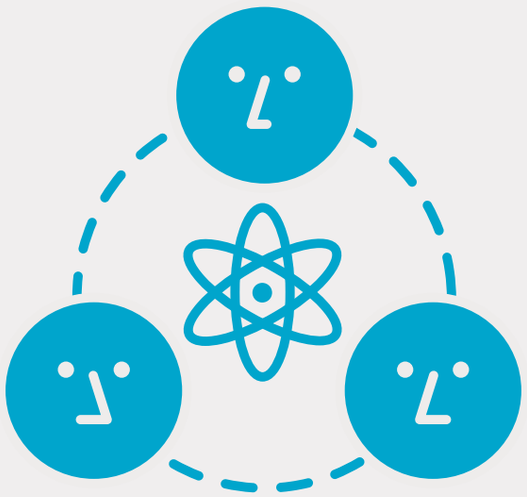
Look, create, travel and invent with us. It’s worth your while.

Science & Society

Social Sciences

Technology

Environmental Sciences



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Polisabio 2018, More Grants for Health Research

Polisabio 2018, the second edition of the Partnership Program between the **Universitat Politècnica de València** and the Valencian Foundation for the Promotion of Health and Biomedical Research in the Valencian Community (**FISABIO**, for its Valencian initials), is already underway. To encourage participation in the program, a conference will be held on **April 20** at the **Gandia Hospital**, to which researchers from the UPV and health personnel have been summoned.

Likewise, several **information sessions** will be held to explain the requirements of the call, how to participate and the functioning of the online platform for the program. **José Pelegrí**, member of the executive team of the Gandia Campus, will participate in the Gandia hospital session. The calendar for the main sessions is as follows:

Gandia Friday, April 20, at 1:00 pm, in the Assembly Hall of the Francesc de Borja Hospital in Gandia

Valencia Tuesday, April 24, at 9:30 am, in the Fisabio Assembly Hall – Public Health Building in Valencia

Alcoy Friday, April 27, at 12:30 pm, in the Assembly Hall of the Virgen de los Lirios Hospital in Alcoy

Three **UPV-FISABIO Cooperation Seminars** will be scheduled during the **first half of Jun**e in conjunction with the opening of the call for grants, where previously arranged bilateral meetings will be held between researchers and health professionals. **The submission period for applications is from June 18 to July 9.**

IMPROVING PEOPLE'S HEALTH AND QUALITY OF LIFE

For **Jesús Alba,** director of the **Campus Gandia,** this joint endeavor will increase the direct impact of science on people's health and quality of life, since the projects will be focused on the **real needs of society**. It will also **stimulate new collaborations between both groups, the university and healthcare personnel.**

The **UPV-FISABIO Partnership Program** was launched in 2017 with the aim of generating synergies and stimulating new collaborations between researchers from the UPV and the staff of the Valencian Community Health Departments affiliated with FISABIO. Initially the program was developed for the Alcoy and Gandia campuses, and the surrounding hospitals. Five projects on Campus Gandia were financed.

The Program for 2018 has been extended to the Vera campus and the rest of the FISABIO centers in the province of Valencia, with the launch of the **II Joint Call for Grants 2018** that will award **20 grants of € 3,000 each** to finance **Preparatory Actions** to support the exploration and formulation of future RDI projects. A minimum of 4 grants are guaranteed to the Campus Gandia.

The purpose of this call is to support and promote preparatory activities to carry out joint **research/ innovation projects** coordinated between staff members from both entities, as well as to strengthen **collaboration between researchers from the UPV and the staff from centers affiliated with FISABIO**, particularly from the Departments of Health of Xàtiva-Ontinyent, Elda, Sant Joan d'Alacant, Marina Baixa, Gandia, Alcoi, Sagunt, Requena, València-Arnau de Vilanova-Llíria, València- Doctor Peset, as well as FISABIO – Public Health and FISABIO- Medical Ophthalmology.

To encourage the generation of new projects and facilitate participation in the call, the POLISABIO online platform has been created to register the **"expressions of interest"** (brief descriptions of the project idea) in order to identify health professionals interested in collaborating.

Campus Gandia of the UPV to Showcase its Research in a Conference

Campus Gandia of the Universitat Politècnica de València wants to continue strengthening its research after reaching **historic levels** in its scientific output last year. To this end, it will host the **Explora RDI Conference** to present many of the research lines being developed on the campus. It will take place on Thursday, February 22nd from 12:00 noon to 3:00 pm in Conference Room 1.

According to **José Pelegrí**, member of the Senior Management Team at Campus Gandia, the activity aims to encourage collaboration between research teams, as well as attract new talent from the students. "**Science and research are key to social progress.** The collaboration between disciplines and also between generations is fundamental to increase the potential of the teams," he explains.

Registration for the event is open to all businesses, institutions and members of the general public who are interested in discovering details of the research being carried out or the names of the project leaders. Likewise, content is being produced that will be made available on the **Campus Gandia Slideshare channel**.

PROGRAM OF ACTIVITIES

12.00h Noon **Conference Presentation**. Jesús Alba, Campus Gandia Director.
Moderator: Vicente Estruch

12.10h **Research Institute for Integrated Coastal Zone Management (IGIC)**, Jaime Lloret

12.20h **Interactive and Immersive Technologies**, Fernando Boronat

12.30h **Reenginyeria, organització, treball en grup i logística empresarial**, Lourdes Canós.

12.40h **Acoustics: Architectural and Environmental**, Romina del Rey

12.50h **Sensors and Magnetism,** José Pelegrí

13.00h **Ecology (Fluvial and Coastal Environment)**, Francisco Martínez-Capel

13.10h **Languages, Communication and Digital Technologies**, Eva Mestre

13.20h **Applications of Ultrasound in Dentistry**, Francisco Camarena

13.30h **Youth Culture, Social Activism and Communication**, Ariadna Fernández

13.40h **Noise Reduction in Space Launches**, Rubén Picó

13.50h **Development of New materials to Improve the Determination of Compounds of Environmental Interest**, Sagrario Torres

14.00h **Linguistics Knowledge Engineering**, Carlos Periñán

14.10h **Tourism Management of Natural and Cultural Heritage**, Maryland Morant

14.20h **Satellite Tracking of Sea Turtles**

14.30h **Sensors and Sensor Networks**, Lorena Parra

14.40h **Internet Television and Video Communications**, Sandra Sendra

14.50h **Tourism, Territory and Environment**, Lluís Miret

Marketing Lab, Bernat Roig

The Gender Perspective in Science

The Equality Committee of the Campus Gandia of the Universitat Politècnica de València organized the conference "Equality: A Path That We Can Travel Together". The activity forms part of the Campus Gandia program to commemorate March 8, International Women's Day.

According to **Eva Mestre**, Committee coordinator, the conference wanted to "examine the current situation of **women and science**; acknowledge the existing problems and the implications of certain behaviors stemming from the **information age**, and shed a light on the **basic concepts relating to gender equality**."

EQUALITY IN SCIENCE

Capitolina Díaz, professor at the **Universitat de València** and former director of th**e Women and Science Unit** of the Ministry of Education and Science for the Government of Spain, gave the conference keynote presentation titled, **"The Inclusion of the Gender Perspective in Science"**.
According to Díaz, "**science does not embrace women**. And the fact is that women embrace science, as evidenced by the high percentage of women who enter universities and pass their exams successfully. It is later when the institution turns its back on them. **We are facing a subtle, covert discrimination**."

"SCIENCE HAS NOT BEEN SPARED THE ANDROCENTRIC VISION"

The researcher highlighted another aspect, the **object of study**: "Science shows that it does not embrace us when it does not research whether each phenomenon affects women and men equally. That's why **any research and all should introduce the gender perspective**."

For this specialist, "the historical male predominance has made the male, the macho, the archetype for the human being." According to Díaz, **"science has not been spared from this androcentric vision of the world,"** and when science has included women as an object of study, "it was almost always done to highlight their supposed differences with men, especially in relation to reproduction," the researcher warns. Capitolina Díaz assures that introducing the gender perspective in science implies, "an **epistemological chang**e by which science comprehensively and transversally includes women as a part of the object of study exactly the same way as men; with their variability, their experiences and their demands. And it should also take into account the potential differential effects that any research may have on women."

Figure 11: Proportion of women and men in higher education and research, world average

Gender gap widens significantly among science researchers.
226 countries. Data source: UNESCO 2008-2014[11]

FOR A MORE DIVERSE AND EQUAL UNIVERSITY

The **Equality Committee of Campus Gandia** arose from the initiative of a number of people concerned about issues of gender and equality on campus. The aim of the group is, "to organize a series of activities and actions to raise awareness and invite reflection on an essential issue for the development of our society. **Gender equality, respect for diversity**. This is the way forward, this is the utopia."

Gandia to Host the 1st Artisanal Fishing, Tourism and Region Exhibition in the Mediterranean

The mayor of Gandia, Diana Morant; the president of the Fishermen's Association, Domingo Ciurana; the professor from the Campus Gandia of the Universitat Politècnica de València, Miguel Rodilla; and the Councilor for Economic Policy, Alicia Izquierdo, have presented the 1st Artisanal Fishing, Tourism and Region Exhibition of the Mediterranean, taking place from May 14th to 20th in the esplanade of the Lonja de Gandia. The aim is to throw a spotlight on Mediterranean fishing and its environmental, cultural, gastronomic and tourist importance.

The event is organized by the **GALP Gandia Albufera** (Local Fishing Action Group), composed of the Gandia City Council Departments of Commerce and Tourism, the Fishermen's Association of Gandia, the Universitat Politècnica de València, with professors and students from the Undergraduate Degree in Environmental Sciences and the Master's Degree in Environmental Evaluation and Monitoring of Marine and Coastal Ecosystems at the UPV; the UPV Tierra Ciudadana Chair is also participating in the event.

According to **Miguel Rodilla**, the exhibit has three main aspects: an **educational** aspect aimed at primary and secondary students from La Safor, taking place mainly from Monday 14th to Friday 18th May; a **scientific-technical** aspect, taking place both at Campus Gandia and the Port; and a **social** aspect open to the public, featuring family-friendly activities, taking place from Saturday 19th to Sunday 20th at noon

SCIENTIFIC – TECHNICAL MEETINGS

In the scientific – technical area there will be a meeting of the **Spanish Network of Fishing Groups** where members of the GALP and representatives of autonomous, national and European institutions will participate; these sessions will take place on May 16th and 17th. The sessions scheduled on the 18th and 19th revolve around the research project titled "The Role of the Spanish Mediterranean Fishermen's Associations in the Integrated Management of Coastal Areas" funded by the Ministry of Economy and Competitiveness, the State Plan for Scientific and Technical Research and Innovation. UPV professor, **Paloma Herrera** will coordinate these sessions.

ACTIVITIES FOR ALL AUDIENCES ON THE WEEKEND

The most popular part of the exhibition will be inaugurated on Saturday at noon. This will take place over the weekend with the participation of seafaring entities, such as **fishermen, the Royal Yacht Club in Gandia, diving centers, the Red Cross, etc**. The public will be able can visit recreational boats and fishing boats. A drawing, photography and painting contest has also been called. There will be workshops for all audiences organized by the UPV and other scientific entities, focusing on on cetacean strandings, turtle recovery, the color of fish, and marine and coastal ecosystems, among others. And there will be no shortage of show cooking to learn traditional recipes, as well as sale of local food products.

According to the researcher **Miguel Rodilla**, these actions are "fundamental". "All the actors involved in fishing have to work together as one: **scientists, fishermen, politicians, etc.**" He also highlights the outreach activities in the Gandia and the regional schools about the exhibition. "It is about **contributing to their education** and helping to form more complete people in the future who will be conscious of the **footprint left behind by humans in their immediate environment**."

Campus Gandia to Host the European Academy of Management and Business Economics Conference

Campus Gandia of the Universitat Politècnica de València (UPV) is set to host the conference titled "XXXII Annual Meeting of the European Academy of Management and Business Economics" from June 6-8, 2018. The motto in this edition is "Towards social, economic and business improvement: Multidisciplinary advances in Innovation, Tourism and Engineering". The objective of the meeting organized by AEDEM is to promote multidisciplinary **discussion** and is aimed at academics, professionals, and doctoral students. The deadline for paper submissions is **March 23**.

Researchers and technical personnel from Campus Gandia are actively participating in the organizing committee. Campus Gandia director, **Jesús Alba,** director del Campus de Gandia, said that it will be a great opportunity for learning and research.

THE CONFERENCE TRACKS FOR WHICH YOU CAN SUBMIT PAPERS ARE:

- Accounting and Audit
- Finance
- Banking
- Human Resources
- Corporate Social Responsibility
- Management
- Digital Economy
- Marketing
- Educationand New Learning Technologies
- Knowledge Managementand Innovation
- Entrepreneurship
- Tourism Management
- Family Business
- Transport and Mobility

With the aim of promoting multidisciplinary relations, two new workshops have been incorporated this year:

- Engineering and Business Management
- Advances in Health Economics and Policy

AN OPPORTUNITY FOR RESEARCHERS AND PROFESSIONALS

Cristina Santandreu, conference co-director, tells us why it is of interest to attend the AEDEM congress:a

- Bolstering learning and the transmission of knowledge. The AEDEM conference is the perfect forum to exchange knowledge and meet experts from various areas related to the Business Economics: Finance and Accounting, Marketing, Management, Social Responsibility, Human Resources, Knowledge Management, Family Business, Digital Economy and Education. Each edition incorporates new fields of knowledge and the 2018 edition sees the inclusion of health and engineering related tracks.
- Building a network of contacts. The conference program promotes constant contact between the assistants, either in the parallel sessions (specific for each subject area) or in the workshops. Coffee and food is offered, as well as the opportunity to attend the gala dinner, where attendees can chat in a more relaxed atmosphere.
- Certificates. Attendees receive certificates of attendance and the speakers receive certificates of participation. Likewise, a series of conference awards will be given to the best papers that will also enrich the curriculum.
- Publication opportunities. Authors presenting outstanding papers will be invited to submit an extended version to one of the following journals: European Journal of Management & Business Economics (EJM&BE) and the European Research on Management and Business Economics (ERMBE). Both scientific journals are indexed in Scimago Journal Rank (SJR), Quality of Spanish Scientific Journals (FECYT) and Emerging Sources Citation Index.

A MULTIDISCIPLINARY CONFERENCE

The sponsoring university of the XXXII AEDEM conference is the Campus Gandia of the UPV, "a university that **comprehends various fields of knowledge** and that is committed to **synergies**", says **Óscar Morant**, co-director of the conference. The motto of this conference arises from this field of interactions, "which includes all the disciplines taught on our campus and which provides the opportunity for researchers and professors of the UPV to throw spotlight on their line of research, **establish relationships and collaborations** with other colleagues from this and other Spanish universities," says Morant.

CÁTEDRA METROPOL-PARASOL AWARD

In addition, during the conference the Cátedra Metropol-Parasol Award will be announced for the best paper in business management of public and private urban tourist areas. This acknowledgment aims to encourage and promote initiatives from the academic world that contribute to the improvement of business management in urban areas with high potential or tourist development.

In short, the aim is to promote learning, discussing, and exchanging knowledge between students, professionals or researchers, this year in the wonderful city of Gandia, which offers plenty of charm to visitors.

IVIO Receives the FAES 2018 Award for Its Commitment to Research and Education

The past edition of the awards of the Federation of Employers Associations of the Safor (FAES, for its Spanish initials) showcased the work carried out by the Valencian Institute of Dental Research (IVIO, for its Spanish initials).The Campus Gandia of the Universitat Politècnica de Valencia recognized the company **Biocenosis**, owner of the **IVIO Dental brand**, for its commitment to research and scholarships for university students, through the IVIO-UPV Chair. The director of Campus Gandia of the UPV, Jesús Alba, was in charge of presenting the prize to its CEO, **Joan Faus López**, who commented on the importance of symbiosis between companies and education.

Biocenosis is a company dedicated to the administration and management of dental clinics, such as IVIO Dental. It has a dual function; on the one hand it is a clinic with a trajectory of over a decade, and on the other hand, it is an institute that trains dental professionals. The clinic applies bioengineering materials and processes developed at the Campus Gandia.

RECOGNITION FOR THE WORK

The close collaboration between IVIO Dental and Campus Gandia of the Universitat Politècnica de València is carried out through the IVIO-UPV Chair, created in 2016 and directed by professor and researcher Francisco Camarena. The purpose is to promote the dissemination, research and teaching among professionals and students of technologies that can be applied to dentistry.

Thanks to this Chair, Gandia is now on the map of the leading dental research centers in Spain. The students at the UPV frequently publish papers on the research carried out during the master's degree in prestigious magazines and congresses. The most recent published author, Josep Rodríguez, was awarded at the Tecniacústica Conference for his work "**Monitoring the Setting of Bone Cements Using Ultrasonic**", which is part of one of the main lines of research on the **application of ultrasound in dentistry**, promoted by the IVIO-UPV Chair.

Among the research and educational activities included were:

- A collaboration grant for MIA students
- An internship contract for students of Audiovisual Communication
- A research hiring contract

These actions add to the two research contracts and two collaboration grants for the Chair staff at Campus Gandia. A firm commitment in the same direction for which IVIO Dental has received the FAES award in its 2018 edition.

Gandia Hosts Science Week With 44 Activities to Suit Every Taste

Experiment and have fun with science and learn that human life is better thanks to it. This is the goal of **Science Week in Gandia**, an activity jointly sponsored by the **CEIC Alfons el Vell, Campus Gandia of the Universitat Politècnica de València (UPV) and the Universitat de València (UV**), with the support of the **City of Gandia** and the **Ministry of Education, Research, Culture and Sports of the Generalitat Valenciana.**

Science Week is set to took place from **November 5th to 10th at various venues throughout the city**.

The program was presented at a press conference by **Luis Miret, director of the CEIC Alfons el Vell; Jesús Alba, director of the Campus Gandia of the UPV; J. Emili Aura, director of the Gandia International Center – UV; and Joan Muñoz, Councilor for Culture of the Gandia City Council**. The spokespersons for the organizations sponsoring Science Week were **very satisfied with the collaboration and stated that there were already more than 900 children enrolled**, and that they expected to reach 1,500 people participating in all the activities.

WORKSHOPS, EXHIBITION AND THEATER

The Science Week program included 44 activities for different audiences. The real stars were primary and secondary school children that participated in workshops in the Casa de Cultura, Campus Gandia, the Port and Urbalab.

Also, **on Saturday, November 10th at 12 noon**, a free activity was offered to all the family at the Central Children's Library. This activity titled "**The Inspiration of Mary Shelley", will take us back to the life and times of the author of Frankenstein, guided by the storytellers "Los Gatos con Batas"** (*Cats with Labcoats*) and allowed 1st and 2nd year ESO students to dive into the world of electricity, and carry out experiments on conductivity.

Ultrasonic Inspection of Materials; The Sea Chest; Fractals Workshop; Biochemistry in Your Hands; Do you know Arduino?; Interactive Flowers; Do Spirits Exist?; Traditional Fishing Methods and Adaptation of Fish and Marine Organisms; Environmental Education Workshop; Underwater Acoustics Workshops; Do You Want a Fossil? Do It Yourself; Magic and Science; Introduction to the Drone Universe. These are some of the workshops that were offered, with the collaboration of Urbalab; the Scientific Culture of Innovation Unit Chair for Scientifc Dissemination of the UV; the Gandia Smart Tourism Chair; the IVIO-UPV Chair; CEFIRE Gandia; IMAB Gandia, the Galp Gandia Albufera and the UPV Campus Gandia Innovation Chair.

It also featured the exhibition "A Visit to the Genome" and offered **the play "Hypatia, the Light of Thought"**, the Aula Magna (Main Auditorium) of the Campus Gandia.

A WEEK OF CONFERENCES

First-rate scientists gave lectures, with free admission, from **November 5th to 9th at 7:30 pm at the Casa de Cultura** (with the exception of the conference on **November 8th, which will take place at the Visconti Restaurant**).

Monday, November 5th: "Gravitational Waves" by Fernando Barbero, Research Scientist at the CSIC.

Tuesday November 6th: "Coastal Ecosystems and Phytoplankton Seen From Space" by Maite Sebastià, researcher at Campus Gandia UPV.

Wednesday, November 7th: "Fractals and Chaos. The Adventure of Complexity" by Vicent Martínez, professor of Astronomy and Astrophysics at UV.

Thursday, November 8th: "What is Eating Healthy? The Most Widespread Concerns, Myths and Lies About Food" by JM Mulet, researcher at the Institute of Molecular and Cellular Biology of Plants (IBMCP) of the UPV.

Friday, November 9th: "If Dinosaurs Could Talk!" by Maite Suñer, director and Curator of the *Museo Paleontológico de Alpuente*.

INAUGURATION OF THE CORAL *BARBAS LABORATORY

On Thursday, November 8th, at 1:00 pm, the "Coral Barbas" Laboratory was officially inaugurated on Campus Gandia, at the initiative of the research commission of this Campus. **Coral Barbas** is a researcher specialized in Analytical Chemistry and directs the Center of Excellence in Metabolomics and Bioanalysis (CEMBIO, for its Spanish initials). In 2016, the American magazine The Analytical Scientist **chose her as one of the 50 most influential women in the world in Analytical Chemistry**. Coral Barbas herself attended the inauguration and gave a small talk.

COURSE-WORKSHOP ON ORCID

Campus Gandia organized a course-workshop on ORCID, a **scientific contributer identification** that offers researchers many advantages, as it **provides unique persistent identity for humans, allowing them to sign the articles sent to journals, as well as linking them to grant applications. It is integrated into the CVN of the FECYT and is required by Senia** (the UPV curricular management tool).

The course was held on November 7th from 10:00 am -14:00 pm in Room H-103 (H-CRAI Building, Campus Gandia

Conference Series to Increase the Visibility of Women in the Field of Science and Thinking

Increasing the visibility of women in the fields of science and thinking. This is the goal of the Wise Women conference series, organized by the CEIC Alfons el Vell and Campus Gandia of the Universitat Politècnica de València (UPV), with the support of the Ministry of Education, Research, Culture and Sport of the Generalitat Valenciana. The Gandia Smart Tourism Campus Chair, the Equality Department of the City of Gandia and the CEFIRE-Gandia also collaborate. The series is coordinated by the artist, cultural events curator and essayist, Rosa Mascarell Dauder, who will also moderate the conferences.

The Middle Ages, the Renaissance, the Generation of '27, women and science and the figure of Marie Curie are the topics that was addressed in the conferences by renowned female scientists and authors of important works and dissemination activities. **All the conferences will took place at the Casa de Cultura de Gandia at 7:00 p.m.**.

Rosa Mascarell Daudera states that she wants to combat **gender bias that influences unfavorable perceptions and expectations towards women in the workplace**, as demonstrated in the latest annual report on education by the **Organization for Economic Cooperation and Development (OECD)**. "Women have always been active in all fields of study, despite the difficulties that have historically blocked our pathways, basically the prohibitions of learning and schooling and the block against showing and exercising our knowledge through paid work. **We want to showcase female leadership in the world of science, technology and thinking, to inspire women young and old, and reveal a hitherto unknown a part of reality**."

For **Jesús Alba**, director of **the Campus Gandia of the UPV, the university has a social responsibility to fight against gender biases**, to encourage and fully develop all the talent, both female and male. **"Historically women have endured discrimination that has impeded them from showing their full potential.** With this series of conferences we want to contribute to the recognition of their extra effort and to raise awareness about the need to **fight the obstacles that still prevent equal participation in the public sphere."**

For his part, **Luis Miret**, director of the **CEIC Alfons el Vell**, has shown the commitment of the CEIC through the dissemination of science and thinking and by **vindicating the contributions made by women to culture and technological and scientific development.**

Lorena Milvaques, deputy mayor and deputy councilor for Equality, Diversity and Inclusive Policies of the **City of Gandia**, has shown the town council's support for the initiative: **"Without women, society misses out on half of its potential**. This is why the City Council wants to **encourage initiatives that fight against inequalities** and is actively working to eliminate the obstacles in the personal and professional growth of women."

PROGRAMMING

The entire conference series will take place in the Casa de Cultura de Gandia at 7:00 p.m.

Monday, December 3rd. "Images and Figures of Women's Grievance (XV-XVII centuries)", with **Rosa Rius Gatel** professor of Philosophy at the University of Barcelona and member of the Philosophy and Gender Seminar.

Tuesday, December 4th. "Modern Wives Without Hats: The Women of '27". The conference will be presented by **Maria Elizalde Frez**., Doctor in Philosophy from the Autonomous University of Madrid, specialist in the thoughts and ideas of the generation of '27.

Wednesday December 12th. "Women are Science ... or Are We?" Conference-debate by **Isabel Pérez Arjona**, professor at the UPV-Campus Gandia, researcher at the IGIC and member of the **Equality Committee of Campus Gandia**.

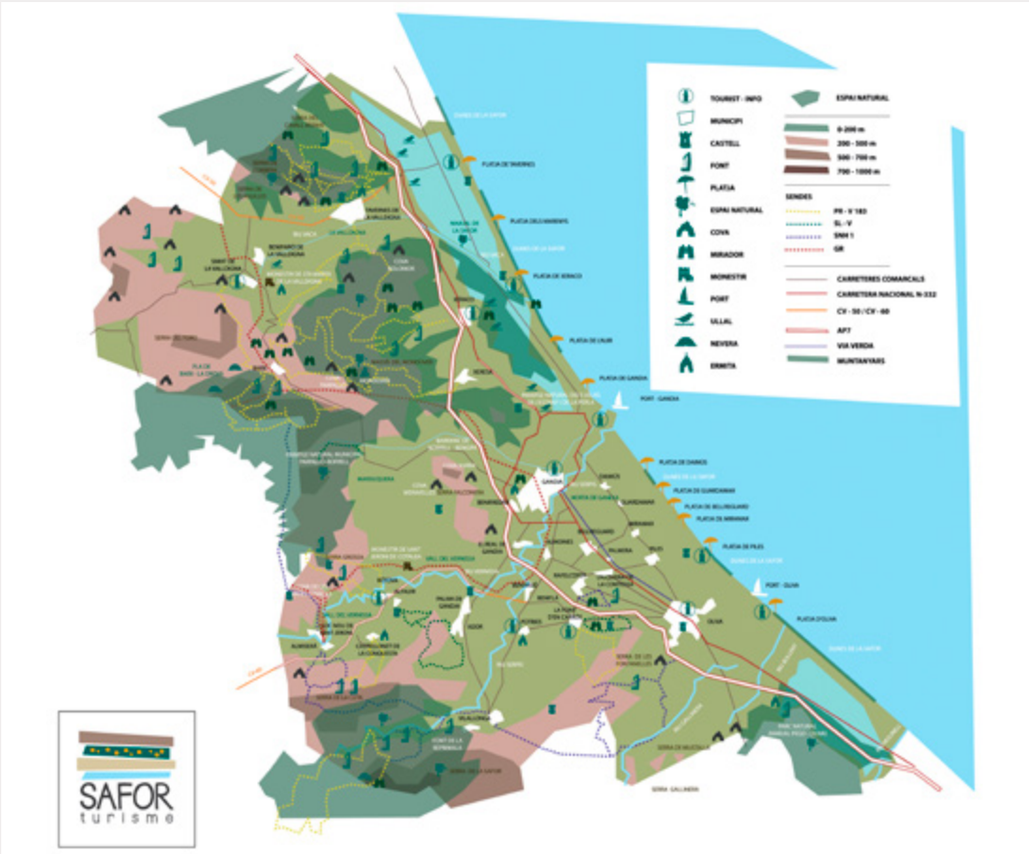
Thursday, December 13th. "The Passion of Marie Curie". **Adela Muñoz Páez** is the star of this dramatized conference where she will play the role of Marie Curie. Adela Muñoz Páez is a full professor of Inorganic Chemistry at the University of Seville. In 2015 she received the Meridiana award from the Women's Institute of the Junta de Andalucía.

Friday, December 14th. "The Writer Isabel de Villena, a Medieval Influencer", will be the subject of presented by **Rosanna Cantavella**, professor of Medieval Catalan Literature at the Universitat de València, a Life Member of Clare Hall, University of Cambridge, and corresponding member of the Royal Academy of Literature of Barcelona.

Social Sciences

1. Campus Gandia Researchers Design Cycling and Pedestrian Routes in the Safor
2. UPV and the City of Gandia Strengthen Their Commitment to Smart Tourism
3. Gandia Promotes Smart Tourist Destinations in the Valencian Community
4. A Campus Graduate Creates a Smart Route Recommendation System for Pego and Les Valls
5. A Campus Gandia Graduate Designs a Route Along a Branch of the Via Augusta de la Safor

Campus Gandia Researchers Design Cycling and Pedestrian Routes in the Safor



Showcasing the landscapes associated with the traditional water use, agriculture and the cultural heritage of **La Safor**. This was the objective behind the **design of the cycling and pedestrian routes** carried out by researchers from the **Campus Gandia of the Universitat Politècnica de València**. **Vicent Altur, José Andrés Sanchis and Maria Teresa Sebastià**, professors in the Environmental Sciences and Tourism departments of the UPV, are the authors of this proposal, entitled "**Tourism Product Network: Regional Cycling and Pedestrian Network**". The execution of the project, which is part of the Tourism Dynamization and Governance Plan of the Commonwealth of Municipalities of the Safor, has already begun, although it will be extended during 2018.

According to Professor Vicent Altur, the route design was based on an initial inventory of the heritage elements in the Safor, proposed by the historical advisor **Frederic Aparisi** and that includes 43 elements. "Other cultural heritage elements have been added to the inventory during the design process of these routes, due to their proximity to the proposed route," explains Altur. "Furthermore, we took into account the coexistence and interconnection of the proposed routes with other routes or historic roads in the region of Safor, such as the Greenways that pass through the Safor, The Route of the Monasteries, the livestock trails, historic roads such as the Old Road to Xativa, the Oliva-Nazaret Road, the Old Oliva-Dènia Road, trails...".

180,000 METERS OF INTERCONNECTED ROUTES

This initial proposal included a total of 183,457 meters of interconnected routes that allow visitors to walk or cycle to a considerable number of patrimonial elements in the Safor. The project proposes the initial location of 6 information boards for each one of these routes: in the Azud de En Carròs de **Villalonga**; in **Rótova**, next to the Vernissa river; in **Potríes**, next to the Town Hall; in **Oliva**, in the Fuente Salada, in the Marjal de Pego-Oliva natural park; in **Xeresa**, in the marjal de la Safor and in **Tavernes de la Valldigna**, next to the Vaca River.

According to the scientific staff, the routes enables visits to more than **65 heritage and environmental elements of the Safor and different environmentally protected areas of high environmental and landscape value**, such as: the Pego-Oliva marsh natural park; the dunes of the Safor; Sierras del Mondúber i Marchuquera; Sierra de Corbera; the humid zone of the mouth and coastline of the Racons River; mouth of the Bullents River; humid zone of the Safor marsh; mouth of the Xeraco river; humid zone of the marsh and pond of the south bank of the Xúquer; Parpalló-Borrell municipal natural area; Protected landscape of the Serpis River...

The routes also include **69 patrimonial elements that can be visited**, distributed throughout the towns of La Safor, such as the Watch Tower of Piles; the old monastery of Sant Jeroni de Cotalba (Alfahuir); the Alqueria del Trinquete (Almoines) or the Marinyén Castle (Benifairó de la Valldigna). The future lines of action, according to UPV researcher Vicent Altur, will address the **conversion of the routes into tracks that can be downloaded on internet and followed on a mobile phone, in addition to the preparation of new information boards**.

SAFOR TURISME

The design of this route is part of the **Safor Turisme** regional initiative promoted by the **Commonwealth of Municipalities of the Safor** and counted with the collaboration of UPV research faculty and staff in numerous phases, under a framework agreement: in the design of the training plan, teaching for tourism agents in areas such as marketing, tour packages or communication; in the use of new technologies and also in management, developed by expert and professor at the UPV, **Pau Pérez**. The plan is co-financed by the Valencian Tourist Agency, Provincial Council of Valencia and Commonwealth of Municipalities of the Safor.

UPV and the City of Gandia Strengthen Their Commitment to Smart Tourism

The **City Council of Gandia** and the **Universitat Politècnica de València** (UPV) have signed an agreement to create the **"Gandia Smart Tourism" Chair** to promote initiatives that facilitate **collaboration between the tourism sector and the university, as well as as the transfer of knowledge**. The aim of the chair is to contribute to the development of a tourism based on science and knowledge, thus increasing the positive impact on the population from the social, economic, work-related, cultural and environmental stand points.

DRILLING DOWN ON COLLABORATION

LThe mayor of Gandia, **Diana Morant**, said that this chair is **absolutely necessary for the city**, since it will contribute to better tourism services, will benefit the sector and will allow visitors to be more satisfied with our city. The mayor pointed out that the main driving force of Gandia's economy is tourism, making it essential to **commit to quality and professionalization and adapt to new times**, technology and the demands of travelers.

The **"Gandia Smart Tourism" chair increases the prestige of the city of Gandia**, which has given the distinction two years ago as **City of Science and Innovation** by the Ministry of Economy, Industry and Competitiveness, who assessed the work, the productive sectors and the innovative character of the city.

The Rector of the UPV, **Francisco J. Mora,** expressed his satisfaction over the signing of this new Chair, which will deepen the already **close partnership** that exists between the UPV and the City of Gandia, especially through its Campus in the city

For his part, the director of the Campus Gandia, **Jesús Alba**, expressed the interest of Campus Gandia because the Chair is **a way of working side-by-side with the tourism sector and institutions**, which benefits the entire population from the economic, work-related and environmental stand points, as well as the students and graduates of the UPV.

FORESEEN ACTIONS

Within the framework of the chair, various actions have been planned: national and international **conferences, symposiums and tourist activities** at the UPV campus in Gandia, which serve as a **pole of attraction for year-round a tourist offerings** and as a meeting point and debate forum for the sector; Bachelor's, Master's and Doctoral theses, both in the field of tourism and any other field applied transversally in tourism (technologies, communication, sustainability ...); **training in the tourism field and in the dissemination of the learining opportunities offered by Campus Gandia**, both at the national and international level; the promotion of student initiatives in the field of tourism, which will be carried out under the UPV's **"Spontaneous Generation"** program; the promotion of actions that foster equality, solidarity, ethics and tolerance in tourism. The agreement has a budget of 41,900 euros and its duration (renewable) is until December 31, 2018.

Gandia Promotes Smart Tourist Destinations in the Valencian Community

Public administrations, students, research staff and businesses participated in the **"Smart Tourism" Conference,** set to take place on the **Campus Gandia of the Universitat Politècnica de València** (UPV) on September 26 and 27, 2018.

The conference is part of the project titled "IoT-based environmental monitoring of a tourist area for user information and service improvement. Pilot tests on the beaches of Benidorm, Gandia and Benicàssim", funded by the collaboration agreement between Turisme Comunitat Valenciana and the UPV.

Diana Morant, Mayor of Gandia; **Raquel Huete**, General Director of Tourism of the Generalitat Valenciana; **Jesús Alba**, Director of Campus Gandia and **Eva Mestre**, Director of the Conference and of the Degree in Tourism of the UPV, presented the content of the Conference in a press conference that took place in the city council of Gandia.

Eva Mestre explained that the offerings will include **lectures, round table discussions and and practical workshops given by top level experts**. "We will talk about Big Data, Geomarketing, Revenue Management, gamification, creation of tourist destinations, technologies for promotion, mobile applications ... we will also **award start-up prizes and we will offer spaces for the exchange of ideas and the generation of opportunities"**. Professor Eva Mestre has invited all those interested in the Conference to register as it is "a **unique opportunity** to gain knowledge in this subject."

TECHNOLOGY, ENVIRONMENT, TOURISM AND COMMUNICATION

Jesús Alba, director of Campus Gandia and also director of the *Gandia Turismo Inteligente* **Chair** that collaborates with the conference, said that the **Campus offers great capabilities at the service of Smart Tourism**, both from the point of view of research and its own students and graduates. "We turn out experts in Tourism, Environmental Science, Communication, Telecommunications and Interactive Technologies, fields that play major roles in the development of Smart Tourism," he explained. Therefore, this is a great opportunity **for our students to participate in this conference**, and we encourage them to attend it," continued Jesús Alba.

TECHNOLOGY AT THE SERVICE OF TOURISM

"The 'Smart Tourism' Conference is a **unique opportunity for the tourism sector**; for the debate, the exchange of experiences and the collaboration between all the agents that will make this revolution towards smart destinations a possibility," said Diana Morant, Mayor of Gandia, at the press conference.

"Becoming a smart destination does not mean doing the same with new technological applications; it means **revolutionizing the tourism strategy, the business culture, increasing collaboration with the RDI system** ... and for this we need forums such as the one offered to us by this Conference, which will allow us to create synergies and detect opportunities for improvement ", explained the mayoress.

WORLD TOURISM DAY DEDICATED TO DIGITAL TRANSFORMATION

On her part, Raquel Huete, Director General of Tourism, reported that the **World Tourism Organization would be dedicated this year's World Tourism Day (September 27) to Digital Transformation**. "It is imperative that we know how to manage technology to our advantage, we cannot stay behind. Think about how we plan our vacations: we all use our mobile phones or our computer to research and book them," said Raquel Huete.

The General Director explained that the Generalitat Valenciana is, "working to promote a smart destination based on **sustainability and energy efficiency, connectivity and information systems**, which will encourage the smart development of business, with the participation of all the agents involved" .

A Campus Graduate Creates a Smart Route Recommendation System for Pego and Les Valls

Offer each visitor the **routes that are best suited to their profile and the weather conditions in Pego and Les Valls**. This is the purpose of the **smart recommendations system** developed by the **graduate in Tourism from Campus Gandia of the Universitat Politècnica de València (UPV) Lara Mengual.**

The tourismologist carried out the project for her **Bachelor's Degree Thesis**, under the supervision of the professors of the Degree in Tourism, **Lola Teruel** and **Alberto Palomares**. The three of them have presented the study in several **Smart-City** related forums, and Lara is presenting her work to organizations that may be interested.

"This system recommends the most suitable activities according to the profile for each user or group of users, in the municipalities of **Pego and Les Valls: Atzúbia, Vall de Alcalà, Vall de Gallinera and Vall d'Ebo**. It highlights the most significant features of each route, and recommends the ones that best adapt to the profile of each visitor, as well as complementary activities, the optimal time to carry them out, the nearest complementary offer (accommodation, restaurants, bars), and also describes the flora and fauna of the area. The system also includes alerts to keep visitors informed in case of rains, floods, heat waves and areas under construction, among others," explains Lara Mengual.

"To develop it, **we selected the fourteen routes with the best conditions and proper signage for public and tourist use**. Next, we determined the parameters that characterize each route, such as the route, the gradients, the difficulty, the approximate duration and the type of route. The gradient of most routes ranges from 200 to 700 meters. We have indicated whether children or people with reduced mobility can use the routes, and if they can be traveled by car, bike or on foot," explains the graduate in Tourism.

SMART SYSTEM

To use this recommendation system, **a questionnaire has been created where users can indicate the conditions in which they will carry out the route**: time of year, time, vehicle, accessibility, children, etc... The system calculates the results to obtain a numerical value associated with each itinerary according to the user profile.

"This way, it recommends the routes with the highest numerical value, which indicate that they are the most appropriate for the profile of that particular user. In the event that there are more than one routes recommended, the user will have to choose, based on other parameters such as the duration of the route, the difficulty, the gradient... and select the one that best suits their tastes," according Lara Mengual.

SMART RECOMMENDATION SYSTEMS FOR SMART CITIES

The graduate in Tourism affirms that t**he localities are accepting the challenge of becoming smart cities to improve and become more sustainable**. "This improvement, in terms of the tourism sector, has different readings. One of them is to facilitate the tourist experience and serve as a conduit for the development and revitalization of the municipality," says the Tourism specialist.

"The S**mart Recommendations Systems** have established themselves as **powerful tools to help reduce the information overload that visitors have** in the initial search processes," says Lara Mengual. "These systems use different techniques to identify the services that best satisfy the preferences of the users. The recommendations are generated from the opinions provided by other users or from the user profile. **Its function is to weed out useful information from a large quantity of information that the user could not fully analyze and are now used for different purposes, such as in decision-making, in e-commerce or, simply, in the** websites related to the leisure," says Lara Mengual.

A Campus Gandia Graduate Designs a Route Along a Branch of the Via Augusta de la Safor

Recover our forgotten heritage and create a project to improve and preserve it for future generations, while creating a tourist route to diversify the offerings of la Safor. These are the objectives of the Final Degree Project **"Proposal for the Development and Enhancement of the Vía Augusta Branch in the Towns of Oliva, Piles, Miramar, Guardamar and Daimús in the Safor County"**, carried out by **Francesc Romà Torres Bataller**, graduated in **Tourism from the Universitat Politècnica de València (Campus Gandia)** under the supervision of UPV professor Pau Pérez. The final degree project obtained an **Excellent** *Cum Laude*.

The proposed project extends from the town of Oliva to the mouth of the Serpis River and **promotes sustainable cultural and recreational tourism**. The work describes the cultural and landscape resources of the existing heritage, designs the route and adds value a road that in use since the first century, that passes through the towns of Piles, Miramar, Guardamar and Daimús.

"The premise of this project came about with the help of my father, **Román Torres Climent**, and his love and experiences collected on this road, coinciding with the general lack of awareness about its value, beyond its role as a back road leading to the orchards and *marenys* (marshes) used by the inhabitants of the villages it connects. I'd like this project to prompt for the local agents from the area to work together on tourism, since they're not in the habit of doing so, despite sharing the same beach and marshland," says Francesc Romà Torres.

During development of the project, **the creators worked with the paradigm of cooperation between the towns involved**, since they all have common geological elements such as natural sources (*ullals*), civil architecture, unique flora, native fauna and unique landscapes.

To interpret the viability of the route, **open-ended interviews were conducted with the local politicians and with technical personnel from the respective tourism departments**. "We have dud field work to analyze the route and see the intersections, distances between sign placements, points of interest to place interpretive panels, travel times. In addition, we inspected tourist resources of interest along the route, as well as proposals for improvement.

According to the graduate in Tourism, it is a perfectly applicable product and after interviewing the local agents in charge, he observed a newfound predisposition to work together if the product is economically beneficial to the municipalities.

DESEASONALIZING TOURISM

According to Francesc Romà Torres, the localities of Oliva, Piles, Miramar, Guardamar and Daimús are mature sun and beach tourist destination that face important challenges with regard to deseasonalizing the demand, that tend to concentrate in the summer months and school holidays," explains the expert.

Additionally, there are strong indications that the measures to deseasonalize the demand are working. "Since 2012 the average hotel occupancy from the months of March to October has constantly risen by 12% until 2017, according to INE data. **These statistic substantiate the commitment to creating a cultural, gastronomic and family-oriented offer that can be consumed 365 days a year**. We must also recognize the efforts of the private sector, which keeps tourism business open for twelve months and demonstrates that the businesses committed to staying open year-round are reaping their rewards," says the expert in Tourism.

Even so, in the four towns that the Via Augusta passes through, Daimús, Guardamar, Miramar and Piles, located between the two main cities of the southern half of the Safor, Gandia and Oliva, the tourist products that are offered are even more seasonal and limited to good weather and summer, according to Francesc Romà Torres.

PRODUCT CHARACTERISTICS

The product designed, called **"Via Augusta Branch"**, due to the importance and constant nature of commercial activity since the Roman era, includes six natural sources (*ullals*), along a route that spans 7.5 kilometers. It also runs through a geological fault that provide a privileged access to the *marjal* (marshlands) that allow the visitor to enjoy the channels and the unique flora of the landscape.

The route includes trapiches (medieval sugarmills), though according to Francesc, the towns of Miramar, Guardamar and Daimús only conserve the external architectural structures, that would have to be marked with explanatory panels to bring to light the important role they played in **sugar production** in the XV- XVI centuries, contributing to the cultural explosion of the county during this time period. **The route offers visits to houses, streets and farmhouses from eras "that have to be preserved and rediscovered"**, states Francesc.

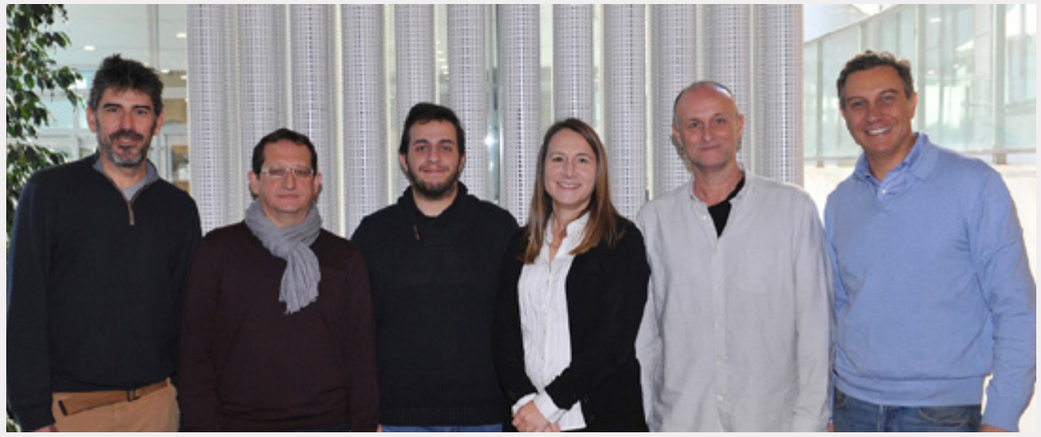
The product proposes complementary visits to the tower of Piles, as well as the Joan Pellicer Bataller bicycle route, "which run perpendicular to our route and are of high cultural and natural interest," the expert points out.

The most significant profiles for this demand, according to the turismologist, would be cultural and educational, "The former because they are passionate about culture and historical information in general and the latter because I think that educational activities could be offered aimed at rediscovering present and past resources," says the expert. **Also bicycle touring, since the route and landscape are perfectly suited to this kind of activity.**

Technology

1. Cristalofnoise, UPV Design for Protection Against Environmental Noise
2. The IVIO-UPV Chair Renews Its Commitment
3. Campus Gandia Researchers Publish a Multimedia Synchronization Reference Book
4. New Biometric Relationships Provide Better Estimates of Bluefin Tuna Weight
5. Design of a Smart Pillow to Improve Sleep Quality
6. Campus Gandia of the UPV Breaks Its Own Record Picking Up Five Awards at the Tecniacústica Conference
7. UPV Researchers Develop Protocol and Algorithm to Improve Video Transmission on Internet

Cristalofnoise, UPV Design for Protection Against Environmental Noise



Javier Redondo (Campus de Gandia), José María Bravo, Marcelino Ferri, Sergio Castiñeira, María del Pilar Peiró and Juan Vicente Sánchez.

A new acoustic shield designed by the **Universitat Politècnica de València** (UPV), with the participation of the **Campus Gandia** and the company **BECSA**, can **reduce traffic noise "on demand"** because the design can be adapted to the different types of noises. The most significant innovation of the shield is the use recycled **PET plastic bottles** for acoustic insulation, something never before used in this type of device. Another advantage of the new system is that **the shields are modular**, which makes installation easier.

The project team from the Politècnica is made up by the researchers **Javier Redondo** (Campus Gandia), **José María Bravo, Marcelino Ferri, Sergio Castiñeira, María del Pilar Peiró, and Juan Vicente Sánchez**. **Manuel Parrilla** (Master in Acoustic Engineering from Campus Gandia) is also participating in the project. The shield designed by the UPV researchers allowed BECSA to take home the award for the best RD&I project in the 4th edition of the Innovacarretera Fair, held in Madrid at the beginning of November 2017.

A YEAR OF INTENSE WORK

"The development of this shield is the result of more than 12 months of work, commissioned directly by the BECSA, which has already received orders for its installation. It incorporates the most recent advances made by our research group, which has been working for more than 20 years on the design of new materials and setups that reduce noise caused by road traffic, airplanes, trains, etc., " explains **Juan Vicente Sánchez** , researcher at the **Center for Physical Technologies: Acoustics, Materials and Astrophysics**, from the UPV.

In addition to the improvements and advantages already described, the system is also **more permeable to wind and water than traditional** shields formed by continuous walls, which results in a reduction of the foundation needed for installation. This property makes it an **ideal structure for attenuating the noise caused by high-speed trains passing through urban centers**. And, unlike conventional shields, it also stands out for its aesthetic appeal that **permits seamless integration into urban settings without any negative visual impact**.

EXAMPLE OF UNIVERSITY-BUSINESS KNOWLEDGE TRANSFER

In addition to the benefits of the shield, the most important accomplishment for the UPV researcher is to have successfully made a University-Industry knowledge transfer. "This product is being recognized by the roadworks construction and maintenance industry; it has been recognized as the best RDI project, ahead of proposals based on other technologies. BECSA already has several requests and we will soon be able to see on our roads these acoustic shields that were tested in the UPV laboratories. It is a clear example of the importance of the **transfer of technology, of the partnership between the university and the productive sector**," highlights Juan Vicente Sánchez.

The IVIO-UPV Chair Renews Its Commitment

For the third consecutive year, the **IVIO-UPV Chair** is renewing its commitment to the promotion and development of scientific-technological knowledge in the field of dentistry.For another year, the agreement signed between the **Universitat Politècnica de València** and the Valencian Institute of Odontological Research (IVIO, for its Spanish intitials) is committed to carrying out educational activities, research, dissemination and knowledge transfer. Within the different fields of activity, the Chair is currently focusing its efforts on augmented reality and ultrasonic non-destructive evaluation applied to dentistry.

To this end, a series of activities have been programmed for the the 2018/19 academic year, including the second edition of the IVIO-UPV Chair Award for the best TFM (Mater's Thesis); or the third of the IVIO-UPV Chair Symposium. This in addition to new collaboration grants, contracts and internships in companies, or participation in top-tier conferences such as Tecniacústica.

KNOWLEDGE TRANSFER

II IVIO-UPV Chair Award for Best Bachelor or Master Thesis

In the first edition, the prize went to Anderson Ladino and his Master's Thesis Project titled "Ultrasonic Monitoring of the Guided Bone Regeneration Process in Dental Implantology". Consult the requirements for the second call in Spanish here. The submission deadline for applications is October 15, 2018

III IVIO-UPV Chair Symposium

A new date where more than 50 dental professionals will gather to share the advances and the current techniques used in oral implantology and periodontics. This year the II Symposium was titled "From Planning to Execution: Digital Flow and Bone Regeneration" and featured the professionals Antonio Castilla and Luis Ilzarbe.

SCIENTIFIC DISSEMINATION:

Popularizing scientific content on social media and blogs

Publishing content related to the Chair in the Campus Gandia science blog UPVGandiaCiencia and sharing it on social media channels such as Facebook, Twitter or on the Chair's microweb.

Support for scientific dissemination activities on Campus Gandia

Collaboration in different scientific dissemination activities such as Science Week, open door days or ForoE.

EDUCATION AND RESEARCH:

2 **research contracts** and 2 **collaboration grants** for the Chair staff at the Gandia Campus.

1 **internship contract** in a company aimed at Audiovisual Communication students, to create content and digital communication.

Tecniacústica Conference 2018. One more year, the IVIO-UPV Chair will participate in the 49th Spanish Acoustics Congress –TECNIACÚSTICA 2018– from October 24-26, 2018 in the city of Cádiz.

Campus Gandia Researchers Publish a Multimedia Synchronization Reference Book

Following the 2015 edition of the **Multimedia Synchronization Workshop (MediaSync 2015)**, which was included in the *ACM International Conference on Interactive Experiences for TV and Online Video (TVX'15),* the prestigious publishing house **Springer** contacted the organizers of the event. It had occurred to two of the organizers of the workshop – Campus Gandia doctoral graduate, **Mario Montagud**, and myself, **Fernando Boronat**, full professor at the Campus – to edit a reference book on this subject. After several editions of the workshop, we thought that the time was right and we got down to work.

After several years of work, reviews, email exchanges, etc., our efforts were finally rewarded with the publication of the book *MediaSync: Handbook on Multimedia Synchronization*. It is a unique reference book on the fascinating field of research known as **Multimedia Synchronization.**This field is sparking a great deal of interest as of late, given the next-generation multimedia services that are offering different types of contents to users using different technologies and devices designed to stimulate as many senses as possible (multi-sensory experience).

WORLD-RENOWNED EXPERTS TAKING PART IN THE BOOK

The book contains 23 chapters written by close to 60 authors (including the most representative and influential world-renowned experts in the field), 679 pages and 241 illustrations (193 in color). The prologue and the epilogue were written by the renowned research professors **Ralf Steinmetz** and **Dick Bulterman**, respectively.

The book offers an **overview of the field from different and complementary angles**, such as the foundations and theoretical frameworks, available solutions and technologies, standardization efforts, typical use cases, perception of synchronization by users (Quality of experience, or QoE), and related experimental studies (such as multi-sensory and virtual experiences).

This constitutes a new reference book that lays the foundations necessary to undertake the new challenges that may arise in the development of **future next-generation multimedia systems**. We hope that it will be of great use to both researchers and professionals in the field who wish to acquire knowledge that will enable them to tackle the new challenges that may arise in the development of new multimedia experiences for users, especially to provide adequate synchronization among all the multimedia elements involved in these experiences.

New Biometric Relationships Provide Better Estimates of Bluefin Tuna Weight

Researchers from the Universitat Politècnica de València and the Spanish Institute of Oceanography have presented a study that determines the weight of bluefin tuna by the relationship between the maximum length, height and width. The application of this study in the sector will potentially contribute to the improvement of controls for the recovery of this species, one that is highly valued one throughout the world, especially in countries such as Japan.

"Its direct application in the bluefin tuna fattening farms would provide producers greater control over the process, making the fattening process of bluefin tuna in captivity **more efficient and ecologically sustainable**," says **Vicente Puig**, researcher at the Institute for Integrated Coastal Zone Management of Campus Gandia of the UPV. This study has been published in the **PLOS ONE** scientific journal.

Presently, tunas are caught on the high seas and placed in transport cages, which are towed to coastal areas where fattening cages are installed. The transfer of tunas from one cage to another is carried out there. During the transfers, an operator uses basic software and manually measures the length of at least 20% of the transferred tuna. The average weight of the transferred tuna is determined using **biometric relationships** that only take into account the average length of the fish and the exact number of fish caught, which can cause **errors in measurements**, resulting in over or underestimates on many occasions

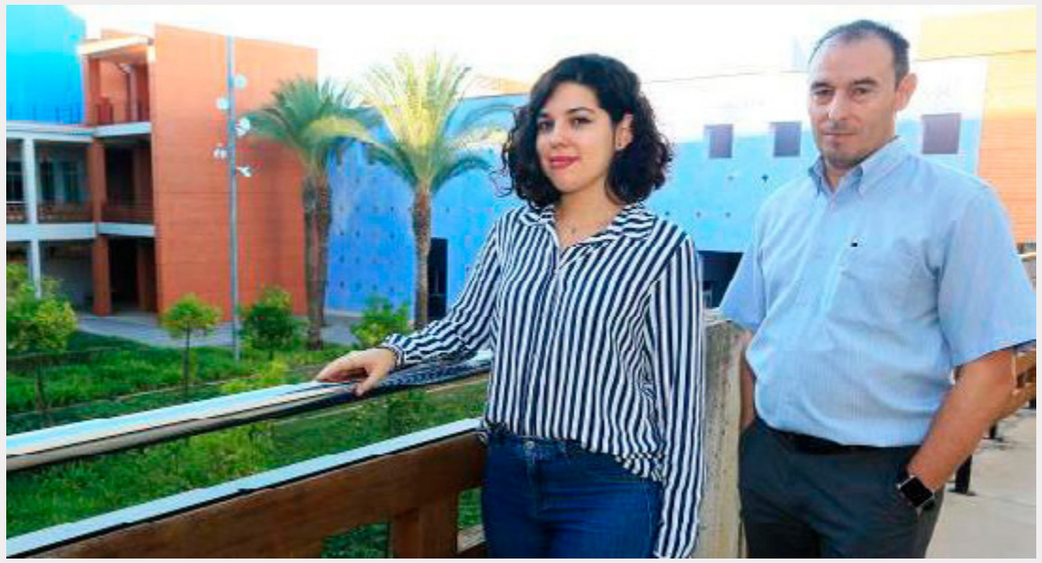
"What they do currently is **measure the length of 20% of the tuna caught** and **estimate the total catch**. If 1000 tuna are caught, 200 are measured and the average length and weight is obtained. Obviously, **not all specimens are the same**; one can measure X and it will weigh differently from another one with the same length. Therefore, it is an estimate that **may differ significantly from the actual catch**. The relationships found in our study will help to minimize these errors," explains Vicente Puig.

The study now being presented by the researchers is part of the **Acustuna project**, and complements the one carried out last year as part of the **Biacop** project, which combined acoustic measurement and stereoscopic vision techniques for counting

The study presents a series of equations developed by UPV researchers, based on real measurements upon the extraction of specimens fattened in cages. With the application of these equations, the estimation of catches and control of fattening by the producers is **much more precise**.

"With the system developed in Biacop, in addition to the length, we can also measure **the width of the tunas**. The biometric relationships presented in this study will enable more accurate estimates of the weight of tuna. With the aid of predictive weight equations based on the linear dimensions of the tuna, **the margins of error in the estimation of the captured biomass are significantly reduced**. Our objective is to offer a system that contributes to the conservation of the species and provide better information on the state of the fisheries so that the fishermen are able to fish, have better knowledge about the fish they catch, and that the restrictions imposed to prevent the overexploitation of resources will result in the sustainability of the species," explains Vicente Puig.

Design of a Smart Pillow to Improve Sleep Quality



Millions of people around the world suffer from sleep disturbances. Today, the main disorders affecting people at bedtime are insomnia and sleep apnea. Researchers from the Universitat Politècnica de València (UPV) and the Technical University of Dresden (Germany) have developed a smart pillow prototype whose purpose is precisely to improve the diagnosis of these pathologies, reduce their incidence and and improve the quality of life of its users.

The pillow incorporates sensors that accurately monitor human parameters such as **body temperature, sweating or body movement**s, as well as record information about room lighting, noise or other sounds.

"We studied which was the best location inside the pillow for each sensor. In addition, we created the code and the algorithms necessary for the correct functioning of the system. **The pillow is able to forward the gathered information through the domestic WiFi network to a medical database**, in order to improve the diagnosis of possible disorders," says **Jaime Lloret**, researcher of the **IGIC at the Campus Gandia of the UPV.**

APPLICATIONS

According to the researchers, the prototype is designed for two types of applications: the first is **the improvement of sleep quality for people without specific sleep disorders**. "In this case, the main advantage of the system is the interconnection of the different elements found in the home that are able to adapt the environment based on the data gathered so as to achieve a better sleep – lower the blinds, adjust the room temperature, etc.," says Jaime Lloret.

The second application is aimed at patients with sleep disorders that have not yet been diagnosed. With this smart pillow, data about the behavior of each individual can be collected over one or more nights "In this case, the domotic part would not be activated. The data will later be analyzed by medical personnel to gather more information about the possible problems experienced during the night and be able to make a diagnosis or request more hospital tests," concludes IGIC researcher, **Lorena Parra**.

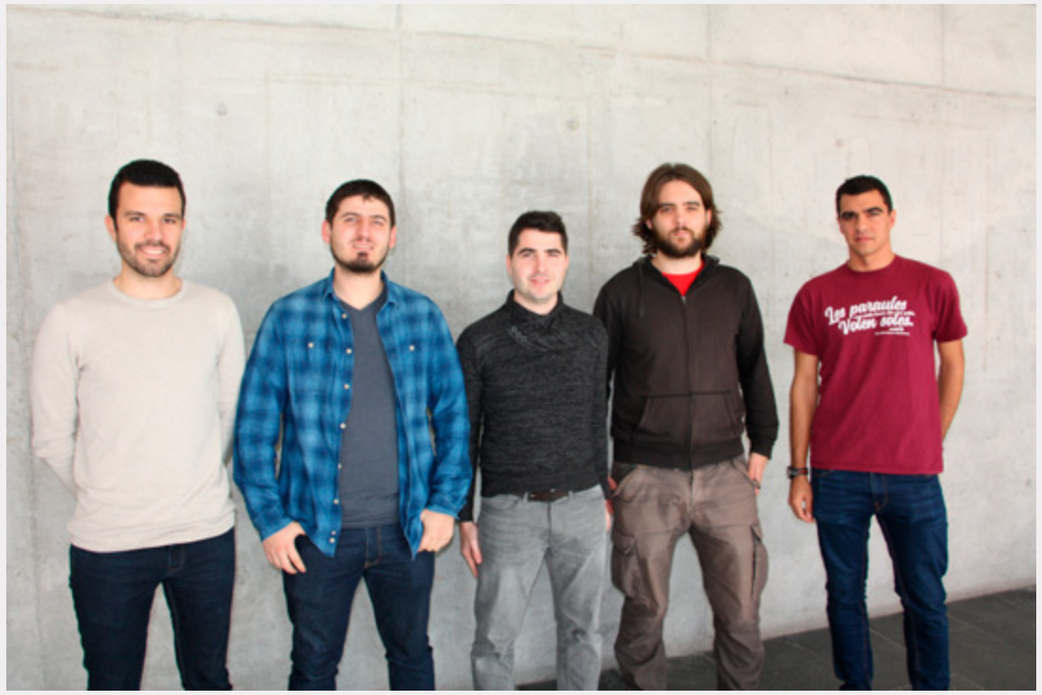
AVOIDING SNORING

The system also incorporates a method to avoid snoring. **When there is a high level of noise, a small speaker is activated above the bed that emits a sound that is very similar to the flight of a mosquito**. "It is proven that this causes the person to move and thus to stop snoring. In the future we intend to use a similar method to detect episodes of sleep apnea and differentiate them from habitual snoring," says **Laura García**, a researcher at the UPV.

MONITORING WELL-BEING

The UPV researchers are also working on the development of **other applications and systems to monitor well-being,** in collaboration with experts from the **University of Granada and the University of Zaragoza,** as well as with different **public hospitals.** These proposals are based on the use of low cost sensors and on how to integrate them into the domestic environment and in the clothes themselves. "The aim is to obtain **low cost and comfortable systems** that allow us to **generate alarms** in when they detect alterations in heart rate, respiration or body temperature, among other options," concludes Jaime Lloret.

Campus Gandia of the UPV Breaks Its Own Record Picking Up Five Awards at the Tecniacústica Conference



Improving the qualities of fabrics to favor their noise-absorption capacity; developing techniques for the control and study of marine species without interfering with the environment; real-time monitoring of bone regeneration in dental implantology; creating new systems for the treatment of neurodegenerative diseases; increasing the detection capabilities of cosmic neutrinos from astronomical sources... these are the scientific contributions carried out in the five research projects backed by Campus Gandia of the Universitat Politècnica de València, that took home awards in the 2018 edition of the Tecniacústica Conference.

The Tecniacústica Conference is organized by the **Spanish Acoustic Society (SEA)**, the leading association in Spain for scientific work and dissemination in the field of acoustics. On this occasion, the conference was held jointly with the **FIA 2018: XI Ibero-American Acoustics Conference.**

The acoustics research staff at Campus Gandia has received successive prizes in the different editions of Tecniacústica, but **has broken its own record** this time, obtaining five awards for the work carried out by the young researchers. Curiously enough, some of the team members of the prized works were previously awarded by the SEA when they were junior researchers. Many of the winners are Campus Gandia graduates, either in the **Bachelor's Degree in Telecommunications Systems Engineering Sound and Image**, or in the **Master's Degree in Acoustic Engineering**.

ACOUSTICS FOR TEXTILE ENGINEERING

Robert Atiénzar, author of the paper **"Acoustic Absorption of New Textile Fabrics"** (**"Absorción Acústica de Nuevos Tejidos Textiles"**, in Spanish), obtained one of the two **Andrés Lara Awards** for young researchers granted this year by the SEA. The research has been carried out alongside **Romina del Rey, Rubén Picó and Jaime Gisbert Payá.** As Robert Atiénzar explains, "the use of acoustic textiles is increasing due to the appearance of greater areas of application and new technological advances. Recently the modification of the fibers has been proposed to obtain new textiles with improved acoustic properties using microcapsules. The objective of this work was to **compare the influence of microcapsules on textile fabrics and estimate their properties as sound absorbers."**

ACOUSTICS FOR THE PROTECTION OF MARINE BIODIVERSITY

Andrés Morillo is the other winner of the **Andrés Lara Award for Young Researchers**. His study was supervised by **Isabel Pérez-Arjona, Víctor Espinosa, Susana Llorens, Vicent Puig and Miguel Rodilla.**

According to Ándrés Morillo, **the Mediterranean Sea has been a source of fishing resources for coastal populations for hundreds of years**. In recent decades the populations of bivalves, more specifically the *Chamelea gallina* venus clams, has seen a pronounced decrease in the number of individuals that compose them. This work proposes cheap and **non-invasive acoustic studies to identify and quantify the venus clam populations of the Mediterranean Sea** in order to carry out protection studies to help to establish policies for sustainable fishing."

ACOUSTICS FOR BIOMEDICINE

Josep Rodríguez Sendra won the **second prize of the Andrés Lara Award** for developing a m**ethod to monitor the bone cement curing process through ultrasonic backscatter analysis**. The work was carried out jointly with **Noé Jiménez, Francisco Camarena and Rubén Picó and Joan Faus,** Doctor in Dentistry.

Sergio Jiménez Gambín won the **UC3M Luis de Camoens Chair Award** for the study "Effects of the Method for Obtaining the Acoustic Properties of Human Skull in the Focused Ultrasound Propagation". This work develops a line of research by doctors **Francisco Camarena and Noé Jiménez**, to combine focused ultrasound and micro-bubbles for local, transient, non-invasive and safe treatment of neurodegenerative diseases.

ACOUSTICS FOR RESEARCH OF THE UNIVERS

Dídac Diego Tortosa also won the **second prize of the Andrés Lara Award** for a work in which different methods of **signal processing** are presented in order to optimize the **acoustic detection of the acoustic positioning system of the KM3NeT neutrino telescope**. The work develops a line of research by UPV researchers **Miguel Ardid and Juan Antonio Martínez Mora**.

UPV Researchers Develop Protocol and Algorithm to Improve Video Transmission on Internet

Improving the quality of video transmission on the internet. This has was the objective of the research carried out in the doctoral thesis, *Design of an Architecture and Communication Protocol for Video Transmission and Videoconference* , by Doctor **José Miguel Jiménez Herranz** and supervised by **Jaime Lloret**, research professor at **Campus Gandia of the Universitat Politècnica de València (UPV).**

Online video streaming is a growing trend. According to Jiménez, **around 50% of the population of the Americas, Europe, Asia and Oceania stream videos online every day**. Additionally, **live video streaming is key to numerous services**, including business management, video games and other entertainment industries. "This has lead to an **exponential increase in demand for systems and networks and greater difficulty in offering a good quality of experience**, especially in environments with limited resources, such as mobile phone networks," says the researcher.

INNOVATIVE ALGORITHM AND PROTOCOL

The solution proposed at Campus Gandia of the UPV is based on the **development of innovative compression algorithms, which result in videos of the smallest size possible.** "We have created coding and decoding algorithms for adaptive networks, as well as control mechanisms that regulate the quality of the experience from the beginning to the end of the cycle. In addition, we have designed, assembled and configured a WAN (Wide Area Network – the ones used by operators or governments); and we have also implemented performance tests to measure the parameters of variations in the quality of the network service and the impact on the quality of the image generated by the variation of these parameters,"explains Jiménez.

"We propose a communication protocol and an algorithm that enable operators to guarantee optimal IPTV service (Internet TV, among other utilities), adjusting the quality of the video to the device used and the bandwidth contracted by the client, so that they have the best experience possible. We have studied different coding languages, taking the bit rate and the coding time for heterogeneous networks into account, and using HTML5 programming language," the researcher goes on to say.

"This information has been used to design an algorithm that controls the server and sends the appropriate type of video for the characteristics detected. The system is designed to be used in applications such as high-quality, bi-directional, real-time video chat, as well as multiple interaction through mobile device browsers, applications or games, "concludes Jiménez.

VIDEOCONFERENCING APPLICATION

The researchers have demonstrated the advantages of the algorithm and protocol for this purpose. "Although broadband consumption may be greater than what is found in already established commercial solutions, **the prototypes presented show greater flexibility to adapt to a wide range of mobile devices and network platforms**," explains the doctor in telecommunications.

According to the telecommunications engineer José Miguel Jiménez, **the current networks present considerable limitations due to the rigid configuration motivated by the use of systems based on static commands**. Furthermore, **virtualization and the use of cloud-hosted technologies are changing the traffic patterns in the network and data centers**. To solve these problems, network administrators traditionally implement solutions based on the replacement of physical infrastructures or redistribution of the load, which implies a high network maintenance cost. Additionally, network administrators do not usually have the necessary resources to instantly optimize the service in accordance with the demand, and thus offer a satisfactory service.

For all these reasons, the solution proposed by José Miguel Jiménez and Jaime Lloret is based on the implementation of networks with **the capacity to adapt to situations, through agents that are able to learn.** These automated agents are connected, share information and cooperate to achieve an optimized distribution in real time

Jiménez also explains that video transmission requires a large bandwidth. "Network congestion reduces bandwidth and has repercussions in the loss of information packets, in the propagation of errors and in delays; this can lead to a deterioration of video quality, frames freezing and errors in sound during communication."

Environmental Sciences

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Ecohydrological-Based Forestry Ideal for Mediterranean Forest Management

Luis Zurano, unitat de comunicació científica UPV
Carlos Besó, tècnic superior IIAMA-UPV

A study carried out by researchers from **The Research Institute of Water and Environmental Engineering** (IIAMA), with the participation of Campus Gandia research scientists, has determined that ecohydrological-based forestry is the most suitable for **forest management** of Mediterranean forests, especially in water-scarce scenarios. The research is based on the consideration that current forest management practices in Mediterranean forests are **costly**, resulting in their **lack of management and abandonment**.

Antonio Del Campo, head of the **Re-ForeST** group, points out that traditional forestry has focused more "on the productive functions of the forest, as in the case of wood or pulp, leaving the rest of natural resources **nearly unsupervised**". In addition, the impact of climate change and its subsequent effects on

A PROBLEM THAT AFFECTS US ALL

Cristina Lull, research professor at **Campus Gandia** and member of the team, that has carried out the study, emphasizes that the care and conservation of forest ecosystems is a subject that is currently "of **global interest**", since it is all about "the solution to different environmental, social and cultural problems". Therefore, "it is necessary to effectuate adequate and sustainable management of forest ecosystems", Lull reminds us.

In forest management it is essential to maintain or increase the reserves of essential nutrients for plants. The management of the forest masses influences the quality and sustainability of the soils and this quality depends on the current and future productivity of the forests. Therefore, the study of soil-tree relationships is "key" because both the forests and the soil itself "can act as **carbon sinks**, and contribute with their storage to **mitigate the effects of climate change**," the researcher points out.

THREE EXPERIMENTAL CASE STUDIES

In the research, three experimental case studies have been evaluated, all three examples of **abandonment of semi-arid forests** located in the **Valencian Community**, sharing the features of low productivity, zero or scarce management, in addition to water limitations.

Guidelines were developed there for the most efficient implementation of this type of management, which aims to quantify and manipulate the components of the water cycle in forests. The results of this **eco-hydrological forest management** determine that, in addition to improving productive functions, this system also contributes to reducing the risk of forest fires, increasing the resilience of ecosystems against droughts, increasing the deep infiltration of water, and improving growth and vigor of the tree and its landscape value.

Antonio del Campo emphasizes that, based on the experimental results, we can affirm that, "the forest treatment improves both the growth (primary and secondary) as well as the numerous eco-hydrological variables studied compared to the control plot and therefore, it is more effective for forest management in the context of global change."

MORE INFORMATION:
"Ecohydrological-based forest management in semi-arid climate"

An Environmental Science Graduate From Campus Gandia UPV Wins the CEMEX Chair Third

Sara Suárez Almiñana, an **Environmental Science** graduate of the Universitat Politècnica de València (Campus of Gandia), has won the third prize in the **CEMEX – Sustainability UPV Awards**, in the category of Master's Thesis related to **sustainability and the environment**. The Master's thesis by Sara Suárez, titled "Habitat Selection Guilds and Habitat Suitability Modelling for the Fish Community in the Upper Cabriel", was supervised by Campus Gandia professor, **Francisco Martínez Capel**l, who is also a professor in the Master's Degree program in Hydraulic Engineering and Environment of the UPV. Sara Suárez enrolled in this master's degree program after finishing her undergraduate studies in Environmental Sciences.

OBJECTIVE: PREVENT THE DISAPPEARANCE OF SPECIES

Sara Suárez' Master's thesis focused on **identifying the habitat requirements of the endemic species of the Upper Cabriel** to aid in the adoption of management measures and **prevent the disappearance of these species**. Among them are the Jucar river Parachondrostoma arrigonis, the common trout, barbel and Valencian chub, as well as an invasive species, the goby. However, **the most threatened species is the Parachondrostoma arrigoni**s, an endangered species, "which very little is known about their customs and whose already small population is diminishing," stated the expert.

According to Sara Suárez, the project arose from the **need to preserve native fish in the face of the many impacts that they have faced and continue to face**, largely due to human activity, such as the construction of barriers, extraction of flows and contamination of the rivers."If to this we add the possible effects of **climate change**, the situation gets even worse," according to the Environmental Scientist. "According to the leading studies, **temperatures in the East of Spain will tend to increase and precipitations to decrease**, especially in inland areas of the basin, where the upper basins of the rivers are located, which may lead to a **dramatic decrease in the river flows**. For these reasons it is essential to introduce new management measures to avoid the disappearance of endangered species," explains Sara Suárez.

RESEARCH METHODS

According to the Environmental Scientist, several **underwater fish-counting campaigns were carried out in each habitat** as part of the study. The different species were subsequently classified in three guilds related to the habitat variables by means of statistical ordination, classification and modeling with neural networks. In addition, the positive or negative influence of these variables on the average density of individuals in each guild was obtained. "The importance of this classification is that guild-based management allows **threatened species to be reintroduced in places inhabited by species of the same guild**, in addition to serving as an guideline for future studies of ecological flows," says Sara Suárez.

The Conservation of Sea Turtles is Nearing

Captive breeding of newborn turtles and protection and relocation of nests would contribute to **the conservation of loggerhead sea turtles**, Caretta caretta, in our waters. This is one of the conclusions found in the first follow-up study conducted on the behavior of post-hatchling turtles in the **Mediterranean** that was recently published in the **Marine Biology** journal.

The research analyzes the dispersal of 19 loggerhead turtles from three different nesting events that were released between 2015 and 2017 and were **satellite-tracked**, in some instances for more than four months. The published study is the result of a collaboration between various institutions, including the **Universitat Politècnica de València (UPV).**

According to UPV researcher, **Sara Abalo**, **the average survival rate** of loggerhead post-hatchlings three months after their release **was at least 59%**; a high figure when compared with the mortality rate of hatchlings, which can be close to 90% in the first hours of life. According to Sara Abalo, the turtles studied were able to survive and disperse properly.

THE LOST YEARS OF THE TURTLES

Eduardo Belda, researcher at **Campus Gandia of the UPV**, affirms that the loggerhead turtles face **several human threats** – fishing, the presence of plastic waste in the sea and climate change – and for this reason it is necessary to understand their behavior so that adequate measures can be established for their protection.

According to the scientist, immediately after birth, the loggerhead hatchlings move towards the sea, swimming away from the coast where they cannot be observed until they return to coastal waters as large juveniles. “This period of time is known as the **‘lost years’** and we need to know about them,” says Eduardo Belda.

NESTING EVENTS IN THE WESTERN MEDITERRANEAN

Since 2001, loggerhead turtle nesting sites are being recorded in the western Mediterranean, something that had not been previously recorded. The turtles born in these western Mediterranean nests are **threatened by the impact of tourism** on the majority of the beaches, so it is necessary for qualified personnel to **relocate** these egg clutches to safe incubation sites.

EFFICIENCY OF CAPTIVE BREEDING

Captive breeding of hatchlings, until they reach the size and weight necessary to survive in non-captivity, is another possible measure, although **its efficiency has been questioned** for fear that the turtles will not develop necessary competencies to become self-sufficient.

According to **Sara Abalo**, Master of Assessment and Environmental Monitoring of Marine and Coastal Ecosystems from the UPV, this study revealed that the loggerhead post-hatchlings bred in captivity were able to feed and disperse properly. The majority of the turtles traveled to open waters in the Mediterranean, with preference for the **Alboran Sea, the Balearic Sea and the Algerian current, in the direction of the Strait of Sicily**. None of the tagged turtles crossed the Strait of Gibraltar, in line with the hypothesis that the small size of the post-hatchlings would not allow them to cross the strong currents entering the Mediterranean in this area.

Only one of the groups of turtles in the study that experienced a parasitic infection during its breeding period, frequented more coastal areas, a behavior that is attributed to their impaired physical condition. Two of the turtles in the entire study recovered some time after their release, both with plastics in their stomachs.

House Martins, Swifts and Swallows: Natural and Cultural Resource of Our Towns and Villages

Sara Tortosa, student at the Gandia Campus

As we've come to expect every year, the songs of house martins, swifts and swallows mark the beginning of spring. With their expected punctuality, these insectivorous birds have returned from Africa traveling thousands of kilometers. It's hard not to remember those summer afternoons playing in the streets of our town as we listened to them sing and watched their acrobatic stunts in the sky. These birds have always been a part of our summer memories, making their nests in the farm houses, the walls of the most emblematic buildings and the houses near the squares and parks. In recent years, these bird populations have had it hard. In spite of overcoming all the hardships of migration, when they arrive here they often find their nests covered or destroyed, and we humans obsessing to ensure that they don't nest on our balconies and walls, with the excuse of wanting "clean cities". Nothing is further from reality, these birds are excellent regulators of the flying insect populations.

While we worry about the filth that can leave in our homes, we often forget the simple solution, such as PVC tables at a safe distance from the nest, or pieces of cardboard taped to the ground to prevent the droppings of house martins and swallows from bothering us. Even though they are protected birds and that removing or covering up their nests is illegal and is fined, we continue to try to kick them out of their homes.

The case of swifts is even more absurd. First we need to explain that they are philopatric animals, which means that they are **faithful to their nesting place**. They make their nests in the small holes and crevices that are typically found in the facades of old buildings. Interestingly enough, adult swifts remove the droppings of their chicks by transporting them in their beaks to areas outside the perimeter of their colony; therefore, **they do not stain the building facades**. It has become increasingly difficult for them to find suitable places to nest due to rehabilitation and changes in building styles. In addition, the **swift colonies establish relationship**s with all their building facade "neighbors" to help **mark their territory, protect themselves from predators and maintain the cohesion of their members**. When their nests are covered up, in addition to subjecting the swifts to the nearly impossible search for a new refuge, we **break the colonial bonds**.

It's not all bad news. Many municipalities that have valued their ecological function are changing the tables. Some good examples are city councils such as Burjassot and Almassora that, in addition to offering education, have distributed nest boxes for swallows and house martins among their neighbors, and have also installed nest boxes in public buildings and parks. Furthermore, municipalities such as Benicarló have worked to rebuild the destroyed swift nests.

But, we can still take a step further by **including these wonderful birds as part of the historical and cultural heritage of each town and city**. To ensure that their songs and air acrobatics continue to accompany us in the late spring afternoons as we go on walks or play with our children. Because **if they disappear from the village church and the historic buildings**, it will feel like we are looking at them with earplugs and you will be **deprived of the full experience**.

The UPV Develops a Low-Cost System to Achieve More Sustainable Aquaculture

Contributing to more sustainable aquaculture: this is the ultimate objective of the dissertation authored by Oliva native, Lorena Parra, and supervised by the the research professors from the Campus Gandia of the UPV, Jaime Llore and Miguel Rodilla. In this regard, the thesis paper presents the design and development of low-cost sensors for fish farms, with very low energy consumption and able to control up to 10 water quality; parameters. These devices monitor fish behavior, especially during the feeding period, to enable automatic adjustment of the fish feed.

The doctoral thesis demonstrates the application of these innovative systems, both in **fish farms and in mangroves and estuaries**. The monitoring process also includes a smart system to **control and track pollution in water bodies**.

THE PROBLEM OF EXCESS FOOD

According to **Lorena Parra**, aquaculture is making efforts to achieve sustainability but is still far from achieving it. “The food not consumed by fish is one of the main **sources of contamination in aquaculture,** as it can give rise to water eutrophication (excess nutrients). This increase in organic waste can lead to oxygen depletion in water and a loss of water quality,” she explains.

Therefore, it is important to develop systems that enable the adjustment of the food supplied to the fish as much as possible, so as to guarantee the sustainability of aquaculture. In addition to **increasing the economic benefits** of the facilities, given that the uneaten feed represents losses for the companies. “Water quality, temperature and salinity are some of the factors that affect the growth of fish. Other factors such as turbidity, photoperiod and dissolved oxygen, among others, can affect the nutritional needs of fish,” says the scientist.

“**By monitoring the quality of water, it is possible to estimate the nutritional needs**,” says the future doctor. “However, that is not enough. We need to objectively know the behavior of fish during their feeding and respond to it accordingly. This is not being done in most facilities, where feeding is done manually and the water quality is not monitored exhaustively.

MONITORING TEN PARAMETERS

The system developed at the **Universitat Politècnica de València** enables control of up to ten parameters, including **water quality, tank conditions and fish behavior during feeding**. The price of the proposed system is **less than €100 per tank**. In addition, it enables automatic adjustment of the fish feeding process and sends alarms to the workers in case the water quality exceeds the established values.

According to Lorena Parra, a preliminary study of the requirements of the sensors in aquaculture was carried out as part of the thesis project, as well as an analysis of the existing sensors for monitoring both water quality and aquaculture. Only then were the proprietary sensors designed and put to the test both in fish farms and in natural aquatic areas, such as mangroves and estuaries. **The sensor network and the sensors themselves will allow access to the data and control the processes remotely, through the Internet**.

Lorena Parra is a graduate of the UPV: first with a Bachelor’s Degree in Environmental Sciences and then a Master’s Degree in Assessment and Environmental Monitoring of Marine and Coastal Ecosystems, both at Campus Gandia, as well as the Master’s Degree in Aquaculture at the Vera Campus of the UPV.

UPV Research Project Predicts Significant Reduction of Available Water Supply in the Serpis River

The dramatic impact of climate change will reduce the amount of available water supply in the **Serpis River**. This is one of the conclusions of the research project titled "Adaptation to Global Change: Integrated Management of the Environmental Flow Regime for the European Eel and Valencia Chub Habitat Against Invasive Species", sponsored by the Biodiversity Foundation of the Ministry for Ecological Transition, under the direction of **Francisco Martínez Capel**, research professor at **Campus Gandia of the Universitat Politècnica de València (UPV)**.

The project features a multidisciplinary team composed of members of the Research Institute for Integrated Coastal Zone Management (IGIC) and the University Institute for Research in Water Engineering and Environment (IIAMA) of the UPV. The Department of Zoology and Physical Anthropology of the University of Murcia (UMU) has also participated.

UP TO 43% REDUCTION IN THE SERPIS FLOW BY 2040

The research predicts a **28% to 43% reduction in the available water supply in the Serpis River over the next 22-year period** (2018-2040), depending on the scenario analyzed. "That is to say that it depends on the implementation of measures to control CO2 emissions," explains researcher Martínez Capel.

The study proposes measures to improve the release of water from the **Beniarrés reservoir**, which would improve agricultural irrigation and the environmental sustainability of the river. However, Martínez Capel explains, **these measures will no longer be sufficient** as the aforementioned period progresses, in which the models foresee a reduction in available water at a far greater pace than these improvements

"Another clear conclusion of the project," explains Martínez Capel, "is that in order to try to mitigate the effects of climate change, it is important to **take measures to modernize irrigation**, but this is not enough. Other measures to save water such as crop changes, water reuse and better management of water flows will be essential," he added

The public presentation of the results took place on June 28 at Campus Gandia of the UPV and was conducted by the director of the IIAMA, **Manuel Pulido**. Prior to the presentation, the results were discussed in meeting with representatives from the Hydrographic Confederation of Júcar, the Irrigation Association of the Riu d'Alcoi (Lower Channels), the Biodiversity Service and Hunting and Fishing Service of the Generalitat Valenciana, CDR-La Safor Rural Development Center, AEMS-Rios con Vida and Fundación Nueva Cultura del Agua.

According to Martínez Capel, thanks to the participation of various users and entities involved, the final result is more substantiated and adjusted to the current situation. During the presentation of the project results, Martínez Capel said that **greater collaboration between research staff, irrigators, associations and administrators is essential to implementing solutions.**

ECOLOGICAL FLOW OF THE SERPIS RIVER

LThe aim of the project was to propose improvements in water management to reconcile a regime of ecological flows for the **Serpis River** that would bring about i**mprovements to the habitat of native species, minimize the impact of invasive species and maximize the benefit for agriculture**. To achieve this, the most advanced techniques have been combined to analyze the habitat in the river, water management and climate change

According to the UPV researcher, Martínez Capel, the medium-term objective of the study is to achieve better adaptation to climate change, that is to say, "to contribute ideas or strategies for improvement that will reduce the costs brought about by the effects of climate change," he explained.

The project carried out a hydraulic study of a section of the Serpis River and of the flows expected in climate change scenarios, in the short and medium term. 'The application of an agronomic model allows us to estimate the water needs of crops in these situations where there is less rain and higher temperature. Lastly, a set of equations were applied to calculate the **optimal management of the reservoir to minimize the impact of climate change on agriculture and the environment**," explained Martínez Capel.

The main conclusion of the project was the verification that climate change will have a great impact by reducing the amount of available water supply and that the management of the Beniarrés reservoir can be improved to reconcile the environmental and agronomic objectives.

NATIVE FISH SPECIES

The study also contributes to the advancement of knowledge concerning the habitat requirements of native fish species and their interaction with invasive species, according to the researcher.

The first phase of the project involved field studies of the European eel and the Valencia chub, a species native to our rivers, as well as pumpkinseed and common bleak, both invasive species. According to Martínez Capel, **invasive species are a majority in the lower sections**, close to urban centers, while **the middle and upper sections,** near Beniarrés, are **dominated by native species, such as the barbel and the eel**.

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