

# Producción científica, febrero 2021

Boletín de publicaciones de producción científica de la  
Universidad Pablo de Olavide.

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## Metodología

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La Biblioteca/CRAI de la UPO, como apoyo a la investigación de la comunidad universitaria del Personal Docente e Investigador, elabora este producto para la visibilidad de la Universidad con relación a su producción científica.

Los datos se obtienen de la colección de la Web of Science, de la base de datos referencial Scopus (Elsevier) y de la base de datos Dialnet.

El listado de las referencias bibliográficas junto a sus resúmenes, que suponen el resultado de la producción científica institucional mensual, ha sido elaborado a partir de la búsqueda en las diferentes bases de datos, utilizando para ello estrategias de búsqueda avanzada.

### Web of Science

Estrategia de búsqueda avanzada:

OG=(Universidad Pablo de Olavide)

Índices=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI

Período de tiempo=Año hasta la fecha

### Scopus

Estrategia de búsqueda avanzada:

(( AF-ID ( "CSIC-JA-UPO-USE - Centro Andaluz de Biología Molecular y Medicina Regenerativa CABIMER" 60012334 ))) OR (( AF-ID ( "Universidad Pablo de Olavide" 60030114 ) OR AF-ID ( "CSIC-JA-UPO - Centro Andaluz de Biología del Desarrollo CABD" 60103756 ))) AND ( LIMIT-TO ( PUBYEAR , 2020 ) )

### Dialnet

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Una vez obtenidos todas las referencias de las publicaciones se ha generado la bibliografía con Zotero.

Fecha de recolección de datos: Web of Science y Scopus: 10/03/2021

Dialnet: 05/03/2021



## Publicaciones

ABREU-BLAYA, R., BERMUDO, S., RODRÍGUEZ, J.M. y TOURÍS, E., 2021. Topological indices and f-polynomials on some graph products. *Symmetry*, vol. 13, no. 2, pp. 1-20. ISSN 20738994. DOI 10.3390/sym13020292.

We obtain inequalities involving many topological indices in classical graph products by using the f-polynomial. In particular, we work with lexicographic product, Cartesian sum and Cartesian product, and with first Zagreb, forgotten, inverse degree and sum lordeg indices.

AGENJO-CALDERÓN, A., 2021. *Economía política feminista: sostenibilidad de la vida y economía mundial*. S.l.: Los Libros de la Catarata. ISBN 978-84-13-52165-7.

La economía política feminista constituye una alternativa sistémica a los análisis de la economía convencional y a las deficiencias estructurales de un sistema capitalista, heteropatriarcal y racista que ha puesto en jaque la sostenibilidad de la vida, causando y agravando el conflicto capital-vida. La financiarización descontrolada, la mercantilización de cada vez más procesos de la vida, la privatización creciente de medios de producción y sectores económicos, la invisibilización de la economía de cuidados o la sobreexplotación de una fuerza de trabajo feminizada y precaria son abordados y replanteados por la economía política feminista.

ALONSO-MARTÍN, P., CRUZ-DÍAZ, R., GRANADO-ALCÓN, C., LAGO-URBANO, R. y MARTÍNEZ-GARCÍA, C., 2021. Variability of higher education students' learning styles depending on gender, course, degree and institutional context. *Sustainability (Switzerland)*, vol. 13, no. 4, pp. 1-18. ISSN 20711050. DOI 10.3390/su13041659.

In higher education it is important to consider learning styles of students to facilitate the teaching–learning process. The aims guiding the research were to describe the learning styles predominating among students in the field of the social sciences, to analyse the results with respect to gender, year of study, degree course and institution, and to perform correlation analysis between these variables. The data analyses were carried out with non-parametric statistics with a confidence level of 95%. The sample was composed of 636 students at the Universities of Huelva (UHU), Cádiz (UCA), and Pablo de Olavide of Seville (UPO), who completed the Honey–Alonso Learning Styles Questionnaire and reported sociodemographic and educational data. The results showed a significant preference for the Reflector style. Significant correlations were found in most variables highlighting that the courses showed an inverse correlation with the learning styles, the Activist, Theorist, and Pragmatist styles being less preferred as they progressed in the career. It is worth noting the significant direct correlation between Reflector, Theorist, and Pragmatist styles, but the Activist style inversely correlates with all three. As a complementary contribution, a proposal for intervention in classrooms with a sustainable perspective is offered. It is important to attend to the evolution

in the preference of the learning styles that students acquire as they advance in higher education courses in order to facilitate a more optimal and sustainable teaching–learning process.

ALZATE MEJÍA, O.A., RUIZ ORTEGA, F.J., LONDOÑO ARIAS, S. y TRUJILLO, L., 2021. Modelos explicativos en anatomía. *Tecné, episteme y didaxis: revista de la Facultad de Ciencia y Tecnología*, no. 49, pp. 219-238. ISSN 0121-3814. 10.17227/ted.num49-7229

The current situation of the Anatomy teaching and learning has great challenges that it must overcome, one of them is to intervene in an effective way the explanatory models on structuring concepts in the formation of the future professional. In this research the main goal was to identify the explanatory models of the students on a superior member, to intervene and evaluate, through a teaching proposal based on the development of argumentative processes, their models. To do this, a qualitative research was carried out in which 30 students from Anatomy of the first semester of Physiotherapy participated in the Autonomous University of Manizales. The results show that the main explanatory models of the students on the subject refer to a heterogeneous model, it is nonspecific and after the intervention, the students pass to an integrating model from a structural, functional and semiological model. This shows the importance of the identification and structuring of proposals that allow bringing the concepts closer to perspectives of a scientific nature in the field of Anatomy.

BASTIDA, F., ELDRIDGE, D.J., GARCIA, C., KENNY PNG, G., BARDGETT, R.D. y DELGADO-BAQUERIZO, M., 2021. Soil microbial diversity-biomass relationships are driven by soil carbon content across global biomes. *ISME JOURNAL*, ISSN 1751-7362. DOI 10.1038/s41396-021-00906-0.

The relationship between biodiversity and biomass has been a long standing debate in ecology. Soil biodiversity and biomass are essential drivers of ecosystem functions. However, unlike plant communities, little is known about how the diversity and biomass of soil microbial communities are interlinked across globally distributed biomes, and how variations in this relationship influence ecosystem function. To fill this knowledge gap, we conducted a field survey across global biomes, with contrasting vegetation and climate types. We show that soil carbon (C) content is associated to the microbial diversity-biomass relationship and ratio in soils across global biomes. This ratio provides an integrative index to identify those locations on Earth wherein diversity is much higher compared with biomass and vice versa. The soil microbial diversity-to-biomass ratio peaks in arid environments with low C content, and is very low in C-rich cold environments. Our study further advances that the reductions in soil C content associated with land use intensification and climate change could cause dramatic shifts in the microbial diversity-biomass ratio, with potential consequences for broad soil processes.

BELLIDO-FERNANDEZ, L., JIMENEZ-REJANO, J.-J., CHILLON-MARTINEZ, R., LORENZO-MUNOZ, A., PINERO-PINTO, E. y REBOLLO-SALAS, M., 2021.

Clinical relevance of massage therapy and abdominal hypopressive gymnastics on chronic nonspecific low back pain: a randomized controlled trial. *Disability and rehabilitation*, ISSN 0963-8288. DOI 10.1080/09638288.2021.1884903.

**Purpose** To determine the clinical relevance of the effects that Massage-Therapy (MT) and Abdominal-Hypopressive-Gymnastics (AHG) and the combination of both procedures have on the disability, pain intensity, quality of life, and lumbar mobility of patients with chronic nonspecific low back pain (CNSLBP). **Methods** A randomized controlled-trial with parallel-groups, concealed allocation, assessor blinding, and intention-to-treat analysis was carried out. The sample included 60 adults with CNSLBP. The participants received MT (n = 20), AHG (n = 20), or MT + AHG (n = 20). Each group received 8 interventions. **Results** The ODI change scores were significantly higher ( $p < 0.05$ ) in the MT + AHG group than in the other two groups. Significant differences were found in the results of NRS, Schober's test, and SF-12 PCS ( $p < 0.05$ ) in each group. There were significant differences ( $p < 0.05$ ) between the values of SF-12 MCS in AHG and MT + AHG groups. **Conclusions** Massage Therapy and Abdominal Hypopressive Gymnastics reduce pain levels, increase the mobility of the lumbar spine, and improve disability and quality of life (PCS) in patients with CNSLBP in the short term. Likewise, AHG and MT + AHG improve quality of life (MCS). The combination of both therapies provides more benefits in terms of lumbar disability in patients with CNSLBP in the short term. This improvement is clinically relevant.

BERMÚDEZ REQUENA, J.M., 2021. El retablo neoclásico del Cristo de la Corona y la concordia con la Archicofradía Sacramental del Sagrario: Detalle de su bendición. *Boletín de las cofradías de Sevilla*, no. 745, pp. 118-120. ISSN 1137-2893.

BLANCO LÓPEZ, J. y CASTRO TÁVARA, M., 2021. Sobre género, organización y liderazgos: claves y herramientas para el acompañamiento. *Participación y Género: Manual para la Intervención con Organizaciones Comunitarias*. S.I.: Aconcagua Libros, pp. 67-89. ISBN 978-84-12-04064-7.

CABEZAS GARCÍA, Á., 2021. Marcados por la violencia. *Descubrir el arte*, no. 264, pp. 62-68. ISSN 1578-9047.

A lo largo de los siglos, ha habido artistas, como Caravaggio, Benvenuto Cellini, Juan Martínez Montañés, Alonso Cano o David Alfaro Siqueiros, que cometieron graves delitos de sangre, mientras otros, entre ellos, Juan de Oviedo, Gerhard von Kugelgen o Alfonso Ponce de León, murieron asesinados.

CAMARERO, J.J., GAZOL, A., SANCHEZ-SALGUERO, R., FAJARDO, A., MCINTIRE, E.J.B., GUTIERREZ, E., BATLLORI, E., BOUDREAU, S., CARRER, M., DIEZ, J., DUFOUR-TREMBLAY, G., GAIRE, N.P., HOFGAARD, A., JOMELLI, V., KIRDYANOV, A., V., LEVESQUE, E., LIANG, E., CARLOS LINARES, J., MATHISEN, I.E., MOISEEV, P.A., SANGUESA-BARREDA, G., SHRESTHA, K.B., TOIVONEN, J.M., TUTUBALINA, O., V. y WILMKING, M., 2021. Global fading of the

temperature-growth coupling at alpine and polar treelines. *Global Change Biology*, ISSN 1354-1013. DOI 10.1111/gcb.15530.

Climate warming is expected to positively alter upward and poleward treelines which are controlled by low temperature and a short growing season. Despite the importance of treelines as a bioassay of climate change, a global field assessment and posterior forecasting of tree growth at annual scales is lacking. Using annually resolved tree-ring data located across Eurasia and the Americas, we quantified and modeled the relationship between temperature and radial growth at treeline during the 20th century. We then tested whether this temperature-growth association will remain stable during the 21st century using a forward model under two climate scenarios (RCP 4.5 and 8.5). During the 20th century, growth enhancements were common in most sites, and temperature and growth showed positive trends. Interestingly, the relationship between temperature and growth trends was contingent on tree age suggesting biogeographic patterns in treeline growth are contingent on local factors besides climate warming. Simulations forecast temperature-growth decoupling during the 21st century. The growing season at treeline is projected to lengthen and growth rates would increase and become less dependent on temperature rise. These forecasts illustrate how growth may decouple from climate warming in cold regions and near the margins of tree existence. Such projected temperature-growth decoupling could impact ecosystem processes in mountain and polar biomes, with feedbacks on climate warming.

CARDONE-RIPORTELLA, C. y GARCÍA-OLALLA, M., 2021. Changes to the regulation and the declaration of unfair terms in mortgage agreements: an event study approach to the Spanish Banking Industry. *European Journal of Law and Economics*, vol. 51, no. 1, pp. 157-181. ISSN 09291261. DOI 10.1007/s10657-020-09678-y.

This paper investigates how the European Union and Spanish changes to the regulation and the declaration of some unfair terms in mortgage loan agreements have affected the valuation of the Spanish banking industry. This paper has a dual legal and economic focus, and could consequently be of interest not only to financial institutions but also to the administrator of justice, which oversees the correct functioning of the financial system and the protection of consumer rights, in this case, mortgage holders. The empirical analysis was carried out using a sample of Spanish companies composed of 11 financial institutions that are listed, or have been listed, on the Madrid stock exchange and 24 non-financial companies listed on the IBEX-35 index. The period analysed was from December 2009 to March 2019. One of the main conclusions was the observation that, in general, the abnormal negative returns of financial institutions are greater when dealing with a decision from the Court of Justice of the European Union rather than from the Spanish Supreme Court. The events referred to as unfair terms that have had the most impact as a whole on the returns of shareholders were, because of their impact of the valuation of financial institutions, in order of importance, those relating to default interest charges, followed by rounding up, and, in last place, the unfair terms of floor clauses, mortgage constitution expenses and multi-currency loans.

CAROCA, E., SERRANO, A., BORJA, R., JIMÉNEZ, A., CARVAJAL, A., BRAGA, A.F.M., RODRIGUEZ-GUTIERREZ, G. y FERMOSO, F.G., 2021. Influence of phenols and furans released during thermal pretreatment of olive mill solid waste on its anaerobic digestion. *Waste Management*, vol. 120, pp. 202-208. ISSN 0956053X. DOI 10.1016/j.wasman.2020.11.027.

The application of thermal pretreatments to facilitate its anaerobic digestion has associated phenols and furans production, which are commonly identified as inhibitory compounds. Phenols and furans extraction can be done from a liquid phase produced after the thermal pretreatment. In the present study this dephenolized liquid phase (DLP) showed an increase of 42% in methane yield compared to the raw liquid phase (LP) demonstrating the inhibitor character of such compounds. The main extracted phenols and furans were: 3,4-Dihydroxyphenylglycol (DHPG), Hydroxytyrosol (HT), Tyrosol (Ty), Vanillic acid (AcV), Hydroxymethylfurfural (HMF), Vanillin (V) and Furfural (F). This study also aimed to evaluate the individual effect on methane production of these specific phenols and furans the within the mixture of several ones from LP. The evaluation of the individual compounds over the methanogenesis of a dephenolized liquid phase showed that only V was inhibitory on both methane yield and methane production rate. HMF had a significantly negative effect on methane yield, but improved the methane production rate instead. Ty, F, DHPG and HT favoured the methane yield and production rate. Additionally, it was observed that negative effect of some individual phenols and furans was counteracted by the positive effect of other compounds. © 2020 Elsevier Ltd

CEBRIAN-HERNANDEZ, A. y JIMENEZ-RODRIGUEZ, E., 2021. Modeling of the Bitcoin Volatility through Key Financial Environment Variables: An Application of Conditional Correlation MGARCH Models. *MATHEMATICS*, vol. 9, no. 3. DOI 10.3390/math9030267.

Since the launch of Bitcoin, there has been a lot of controversy surrounding what asset class it is. Several authors recognize the potential of cryptocurrencies but also certain deviations with respect to the functions of a conventional currency. Instead, Bitcoin's diversifying factor and its high return potential have generated the attention of portfolio managers. In this context, understanding how its volatility is explained is a critical element of investor decision-making. By modeling the volatility of classic assets, nonlinear models such as Generalized Autoregressive Conditional Heteroskedasticity (GARCH) offer suitable results. Therefore, taking GARCH(1,1) as a reference point, the main aim of this study is to model and assess the relationship between the Bitcoin volatility and key financial environment variables through a Conditional Correlation (CC) Multivariate GARCH (MGARCH) approach. For this, several commodities, exchange rates, stock market indices, and company stocks linked to cryptocurrencies have been tested. The results obtained show certain heterogeneity in the fit of the different variables, highlighting the uncorrelation with respect to traditional safe haven assets such as gold and oil. Focusing on the CC-MGARCH model, a better behavior of the dynamic conditional correlation is found compared to the constant.

CENA, H., PORRI, D., DE GIUSEPPE, R., KALMPOURTZIDOU, A., SALVATORE, F.P., GHOSH, M.E., ITANI, L., KREIDIEH, D., BRYTEK-MATERA, A., POCOL, C.B., ARTETA, D.S.A., UTAN, G. y KOLČIĆ, I., 2021. How healthy are health-related behaviors in university students: The holistic study. *Nutrients*, vol. 13, no. 2, pp. 1-16. ISSN 20726643. DOI 10.3390/nu13020675

The aim of this cross-sectional study was to assess the health-related behaviors among university students, with emphasis on health sciences students from Croatia, Italy, Lebanon, Poland, Romania, Spain and Turkey. We included 6222 students in Medicine, Dentistry, Nursing, Pharmacy, Nutrition and Dietetics, Sports Sciences, Veterinary, and Economics enrolled between April 2018 and March 2020. We assessed dietary patterns, sleeping habits, physical activity and perceived stress among students by means of validated questionnaires. The median age ranged between 19 and 24 years, smoking prevalence between 12.0% and 35.4%, and body mass index (BMI) ranged between 21.1 and 23.2 kg/m<sup>2</sup>. Breakfast was less often and more often consumed daily in Turkey (36.7%), and Italy (75.7%), respectively. The highest Mediterranean diet score was recorded in Spain and Italy, and the lowest in Turkey, followed by students from Croatia, Lebanon, Poland and Romania. Sleep duration, physical activity and stress perception also differed between countries. Multivariable regression analysis revealed a small, but positive association between BMI and several characteristics, including age, female gender, smoking, physical activity, mobile phone use, and perceived stress. A negative association was found between BMI and sleep duration on non-working days. Self-rated health perception was positively associated with female gender, breakfast, physical activity, and time spent studying, and negatively with BMI, smoking and stress. Our results demonstrated diverse habits in students from different countries, some of which were less healthy than anticipated, given their educational background. Greater emphasis needs to be placed on improving the lifestyle of these adolescents and young adults, who will be tomorrow's healthcare workers.

CIALTI, P.-H., 2021. La inserción sociolaboral de las víctimas de violencia de género en Francia. Con referencias a mujeres migrantes, con discapacidad, de edad avanzada, jóvenes y del entorno rural. *Trabajo, Persona, Derecho, Mercado: Revista de Estudios sobre Ciencias del Trabajo y Protección Social*, no. 2, pp. 159-206. ISSN 2660-4884.

In the framework of the fight against gender violence, the social and labour insertion of women victims is a central issue, as it represents a decisive variable to be able to permanently emerge from the situation of violence. The present work aims to contribute elements of understanding of the French reality in this regard. To do this, various aspects will be addressed, such as the legal framework relating to equality between men and women, the legal and regulatory measures put in place specifically regarding the social and labour insertion of the victims and the role of the social partners and associations, as well as corporate social responsibility. Finally, some considerations will be made about women subject to other types of vulnerabilities.

COLLADO CAMPAÑA, F., 2021. *El liderazgo local en Andalucía durante la democracia (1979-2019)*. S.l.: Comares. ISBN 978-84-13-69010-0.

La presente obra representa un estudio empírico en profundidad sobre el liderazgo político de los alcaldes que han estado al frente de las corporaciones locales de las capitales de provincia de Andalucía a lo largo de la actual democracia en España. Siendo escasas las aportaciones sobre liderazgo político local entre la Ciencia Política española, se presenta un análisis original a medio camino entre la Ciencia Política y la Sociología Política en el que se abordan elementos como la socialización, sus recursos sociales, el proceso de creación de candidatura, las metas y la prolongación en el tiempo de la carrera política de los líderes locales. En síntesis, el liderazgo político de los alcaldes permite trazar una clara frontera entre los que están más vinculados a la comunidad local de su municipio y aquellos que fundamentan su poder en la propia estructura partidista. Esta dicotomía es básica para observar, analizar e interpretar las acciones, las prácticas y las ideas políticas de estos actores políticos. Las aportaciones expuestas en este libro son el resultado de un trabajo empírico consistente en entrevistas a sus protagonistas y una profunda labor de documentación realizada entre 2014 y 2020. Aunque esta obra se sitúa en el ámbito disciplinar de la Ciencia Política, también contiene contribuciones a la Antropología, la Historia Contemporánea y la Sociología en Andalucía.

CORONA-AGUILAR, A., YERGA MÍGUEZ, M.D. y DÍAZ-JIMÉNEZ, R.M., 2021. Taller como metodología horizontal y empoderante en organizaciones comunitarias. *Participación y Género: Manual para la Intervención con Organizaciones Comunitarias*. S.l.: Aconcagua Libros, pp. 19-34. ISBN 978-84-12-04064-7.

DELGADO NIEBLA, M.L., HERRERA-GUTIÉRREZ, M.R. y PASTOR SELLER, E., 2021. Claves teóricas para comprender la participación y algunas herramientas para promoverla. *Participación y Género: Manual para la Intervención con Organizaciones Comunitarias*. S.l.: Aconcagua Libros, pp. 35-65. ISBN 978-84-12-04064-7.

DIVINA, F., GÓMEZ-VELA, F. y GARCÍA-TORRES, M., 2021. Advanced optimization methods and big data applications in energy demand forecast. *Applied Sciences (Switzerland)*, vol. 11, no. 3, pp. 1-2. ISSN 20763417. DOI 10.3390/app11031261.

FAN, K., DELGADO-BAQUERIZO, M., GUO, X., WANG, D., ZHU, Y.-G. y CHU, H., 2021. Biodiversity of key-stone phylotypes determines crop production in a 4-decade fertilization experiment. *ISME Journal*, vol. 15, no. 2, pp. 550-561. ISSN 17517362. DOI 10.1038/s41396-020-00796-8.

Cropping systems have fertilized soils for decades with undetermined consequences for the productivity and functioning of terrestrial ecosystems. One of the critical unknowns is the role of soil biodiversity in controlling crop production after decades of fertilization. This knowledge gap limits our capacity to assess how changes in soil biodiversity could alter crop production and soil health in changing environments. Here, we used multitrophic ecological networks to investigate the

importance of soil biodiversity, in particular, the biodiversity of key-stone taxa in controlling soil functioning and wheat production in a 35-year field fertilization experiment. We found strong and positive associations between soil functional genes, crop production and the biodiversity of key-stone phylotypes; soils supporting a larger number of key-stone nematode, bacteria and fungi phylotypes yielded the highest wheat production. These key-stone phylotypes were also positively associated with plant growth (phototrophic bacteria, nitrogen fixers) and multiple functional genes related to nutrient cycling. The retrieved information on the genomes clustered with key-stone bacterial phylotypes indicated that the key-stone taxa had higher gene copies of oxidoreductases (participating most biogeochemical cycles of ecosystems and linking to microbial energetics) and 71 essential functional genes associated with carbon, nitrogen, phosphorus, and sulfur cycling. Altogether, our work highlights the fundamental role of the biodiversity of key-stone phylotypes in maintaining soil functioning and crop production after several decades of fertilization, and provides a list of key-stone phylotypes linking to crop production and soil nutrient cycling, which could give science-based guidance for sustainable food production.

FEITO-RUIZ, I., CARDONE-RIPORTELLA, C. y UGHETTO, E., 2021. Debt maturity and SMEs: Do auditor's quality and ownership structure matter? *Journal of Small Business Management*, ISSN 0047-2778. DOI 10.1080/00472778.2020.1866765.

This study analyzes the two corporate governance mechanisms that affect the debt maturity structure of small and medium-sized enterprises (SMEs) listed on the Alternative Investment Market (AIM): Big 4 auditors and the firms' ownership structure. Analyzing 227 listed SMEs (1998-2016) and applying both cross-sectional and panel data estimations, we find that: (a) there is a positive and significant relationship between Big 4 auditors and debt maturity; (b) firms with more ownership concentration have a higher fraction of long-term debt in their capital structure; (c) although family firms are, on average, associated with shorter debt maturities, when they are audited by a Big 4, their debt maturity lengthens.

FERNÁNDEZ, F. y SEGOVIA, J., 2021. Historical introduction to Chiral Quark models. *Symmetry*, vol. 13, no. 2, pp. 1-9. ISSN 20738994. DOI 10.3390/sym13020252.

Chiral symmetry, and its dynamical breaking, has become a cornerstone in the description of the hadron's phenomenology at low energy. The present manuscript gives a historical survey on how the quark model of hadrons has been implemented along the last decades trying to incorporate, among other important non-perturbative features of quantum chromodynamics (QCD), the dynamical chiral symmetry breaking mechanism. This effort has delivered different models such as the chiral bag model, the cloudy bag model, the chiral quark model or the chiral constituent quark model. Our main aim herein is to provide a brief introduction of the Special Issue "Advances in Chiral Quark Models" in *Symmetry* and contribute to the clarification of the differences among the above-mentioned models that include the adjective chiral in their nomenclature.

FERNÁNDEZ-APARICIO, Á., PERONA, J.S., SCHMIDT-RIOVALLE, J. y GONZÁLEZ-JIMÉNEZ, E., 2021. Concordance among diagnostic criteria for metabolic syndrome is inconsistent in Spanish adolescents. *European Journal of Clinical Investigation* [en línea], vol. 51, no. 2. ISSN 00142972. DOI 10.1111/eci.13384.

Background: The metabolic syndrome (MetS), although more frequent in adults, is a growing health problem in adolescent population. There are different criteria for the diagnosis, however without a consensus of which is the best to be used in this population. The heterogeneity of the different diagnostic criteria makes it necessary to carry out more studies that analyse the degree of agreement among these criteria. The present study was aimed to evaluate the agreement between different criteria for diagnosis of MetS in adolescents. Materials and methods: A cross-sectional study was performed on 981 adolescents ( $13.2 \pm 1.2$  years) randomly recruited from 18 schools in south-east Spain. MetS was diagnosed by eight different criteria. Results: The criteria proposed by the IDF showed the highest mean values for WC and systolic blood pressure in boys and girls with MetS, and the lowest for glucose and triglycerides in boys. Depending on the diagnostic criteria used, the prevalence of MetS cases in boys ranged from 5.5% to 14.9%, while in girls varied from 3.4% to 32.6%. Both in boys and girls, the criteria proposed by the IDF was the less concordant with the other suggested criteria, while those proposed by Duncan et al, Rodriguez-Moran et al and Cruz and Goran, were very concordant among each other. However, in girls, concordance values were not as high as those found for boys. Conclusion: The variability observed in the agreement among the existing criteria suggests the need to validate uniform criteria for the diagnosis of MetS in adolescents.

FERNÁNDEZ-RODRÍGUEZ, M.J., DE LA LAMA-CALVENTE, D., JIMÉNEZ-RODRÍGUEZ, A., BORJA, R. y RINCÓN, B., 2021. Evolution of control parameters in biochemical methane potential tests of olive mill solid waste (OMSW), thermal pre-treated OMSW, and its co-digestion with *Dunaliella salina*. *Journal of Applied Phycology*, vol. 33, no. 1, pp. 419-429. ISSN 09218971. DOI 10.1007/s10811-020-02297-9.

The aim of the present work was to compare the mesophilic anaerobic digestion of untreated olive mill solid waste (OMSW), soft hydrothermal pre-treated OMSW (SHP OMSW), and a co-digestion mixture of 95% OMSW and 5% microalga *Dunaliella salina* (co-OMSW). During the co-digestion experiment, the volatile fatty acid accumulation decreased in comparison with that obtained for OMSW and SHP OMSW, reducing the slight inhibition observed during the OMSW and SHP OMSW experiments. Final values of methane yield of  $380 \pm 1$  mL CH<sub>4</sub> g<sup>-1</sup> VS added for the OMSW,  $424 \pm 2$  mL CH<sub>4</sub> g<sup>-1</sup> VS added for the SHP OMSW, and  $491 \pm 1$  mL CH<sub>4</sub> g<sup>-1</sup> VS added for the co-OMSW were determined. Two mathematical models, first-order kinetics and modified Gompertz model, were employed to fit the experimental data with the aim of elucidating the anaerobic biodegradation and obtain the kinetic constants. Both models allowed for adequately fitting the experimental results of methane production with time. The kinetic constant, k, of the first-order model increased by 12% for the co-OMSW compared with the values achieved for OMSW and SHP OMSW. The modified Gompertz model revealed that the maximum methane production rate, R<sub>m</sub>, for

the co-OMSW and SHP OMSW increased by 34.7% and 10.3% compared with the value obtained for OMSW.

FERNÁNDEZ-RODRÍGUEZ, M.J., PUNTANO, N.F., MANCILLA-LEYTÓN, J.M. y BORJA, R., 2021. Batch mesophilic anaerobic co-digestion of spent goat batch mesophilic anaerobic co-digestion of spent goat straw bedding and goat cheese whey: Comparison with the mono-digestion of the two sole substrates. *Journal of Environmental Management* [en línea], vol. 280. ISSN 03014797. DOI 10.1016/j.jenvman.2020.111733.

Spent livestock bedding is a valuable resource for the production of green energy (methane) in rural areas. Comparison and evaluation of batch anaerobic digestion and co-digestion of different mixtures of goat straw bedding (SGSB) and goat cheese whey were carried out. Biochemical methane potential (BMP) tests of the 100% SGSB, 95% SGSB-5% whey, 90% SGSB-10% whey, 85% SGSB-15% whey and 100% whey were found to be  $423 \pm 7$ ,  $354 \pm 9$ ,  $371 \pm 2$ ,  $293 \pm 1$ ,  $274 \pm 2$  mL CH<sub>4</sub> g<sup>-1</sup> VS. Two different kinetic models were evaluated. The logistic model revealed a decrease in the maximum methane production rate (R<sub>m</sub>) from  $34.7 \pm 1.5$  to  $14.1 \pm 0.9$  mL CH<sub>4</sub> g<sup>-1</sup> VS·d<sup>-1</sup> when the percentage of whey in the mixture increased from 0 to 15% as a consequence of the increased ammonia released during the co-digestion of increased concentrations of whey. The lowest value for the maximum methane production predicted by the model (P) was found for 100% whey ( $274 \pm 10$  mL CH<sub>4</sub> g<sup>-1</sup> VS). A two-substrate model was applied to describe the evident existence of rapid and slowly degradable material. Regarding the hydrolysis kinetic constants predicted by this model, considerable increases in the rapid biodegradation stage (k<sub>rapid</sub>) were observed when comparing to the values found for the slow (k<sub>slow</sub>) biodegradation stage in all the cases tested. The increases between both constants rose from 5 to 42% when the percentage of whey increased.

FONTALBA-ROMERO, M.I., LÓPEZ-ENRIQUEZ, S., LAGO-SAMPEDRO, A., GARCIA-ESCOBAR, E., PASTORI, R.L., DOMÍNGUEZ-BENDALA, J., ALVAREZ-CUBELA, S., VALDÉS, S., ROJO-MARTINEZ, G., GARCÍA-FUENTES, E., LABAJOS-MANZANARES, M.T. y GARCÍA-SERRANO, S., 2021. Association between the mediterranean diet and metabolic syndrome with serum levels of mirna in morbid obesity. *Nutrients*, vol. 13, no. 2, pp. 1-12. ISSN 20726643. DOI 10.3390/nu13020436.

Background: The Mediterranean diet (MD) could be involved in the regulation of different miRNAs related to metabolic syndrome (MS). Methods: We analyzed the serum level of mir-let7a-5p, mir-21, mir-590, mir-107 and mir-192 in patients with morbid obesity and its association with the MD and MS. Results: There is an association between the adherence to MD and higher serum levels of mir-590. Mir-590 was lower in those patients who consumed >2 commercial pastries/week. Mir-let7a was lower in those who consumed  $\geq 1$  sweetened drinks, in those who consumed  $\geq 3$  pieces of fruit/day and in those who consumed less red than white meat. A lower mir-590 and mir-let7a, and a higher mir-192 level, were found in patients who met the high-density lipoprotein cholesterol (HDL) criterion of MS. A higher mir-192 was found in those patients who met the triglyceride criterion

of MS and in those with type 2 diabetes (T2DM). Conclusions: There is an association between specific serum levels of miRNAs and the amount and kind of food intake related to MD. Mir-590 was positively associated with a healthy metabolic profile and type of diet, while mir-192 was positively associated with a worse metabolic profile. These associations could be suggestive of a possible modulation of these miRNAs by food.

GONZÁLEZ-GALÁN, C., BALESTRA, S.R.G., LUNA-TRIGUERO, A., MADERO-CASTRO, R.M., ZADERENKO, A.P. y CALERO, S., 2021. Effect of diol isomer/water mixtures on the stability of Zn-MOF-74. *Dalton Transactions*, vol. 50, no. 5, pp. 1808-1815. ISSN 14779226. DOI 10.1039/d0dt03787g.

The stability of metal-organic frameworks is a key factor in many applications in some fields that require working under harsh conditions. It is known that a large number of MOFs are vulnerable to humid air. It means that when they are exposed to water, a structural collapse of the crystal happens. In this work, Molecular Dynamics simulations using a reactive force field have been performed to study the stability of MOF-74 against the adsorption of catechol, resorcinol and hydroquinone in the presence of water. We reproduced the water instability of Zn-MOF-74 and we studied the resistance of the structure. Our simulations showed that the three isomers generate a volume change in the framework but the structural collapse does not happen. In contrast, for water-isomer mixtures, there is structural collapse. Not only do catechol, resorcinol and hydroquinone not behave as stabilizing agents but they do enhance the hydration effect on the structure.

GUZMÁN FLUJA, V.C., 2021. Proceso penal y justicia automatizada. *Revista General de Derecho Procesal*, no. 53, pp. 1- 0. ISSN 1696-9642.

La denominada “justicia automatizada” va ganando cada vez más terreno en el proceso penal. Así, decisiones importantes para el avance del proceso penal y para la solución del caso se sustentan, cada vez con más frecuencia, en los resultados obtenidos mediante el tratamiento automatizado de datos personales de las personas involucradas en el mismo. Es un paso más en el camino iniciado desde los años 70 del siglo XX con la automatización de la localización, recogida, análisis y tratamiento de las huellas, vestigios, elementos y evidencias relacionadas con el delito y que sirven a su esclarecimiento y a la identificación de su autor. Contra lo que pudiera parecer, la evolución de la inteligencia artificial y su aplicación al proceso penal no ha determinado una tendencia reciente a la llamada “justicia automatizada”, sino que la ha aumentado y acelerado cuantitativamente, pero sobre todo cualitativamente, a fuentes de investigación materiales y personales, posteriores fuentes de prueba, así como a datos objetivos y a datos subjetivos o personales. Todo ello, supone una transformación importante en la tramitación de las distintas fases del proceso penal. El tratamiento automatizado de diversas fuentes de investigación hizo posible afinar en la identificación del posible autor del hecho criminal, de ahí se ha extendido a otras fuentes de investigación y, finalmente, se está llegando a un tratamiento automatizado “inteligente” del caso penal en su conjunto, con trascendencia al posterior enjuiciamiento (fuentes de prueba) y decisión. “Digital forensics”,

“computer forensics”, “mobile forensics” son hoy imprescindibles para investigar, enjuiciar y decidir el proceso penal, y posibilitan el trabajo bajo “modelos de inteligencia forense” que implica el tratamiento automatizado de datos masivos mediante algoritmos cada vez más sofisticados que buscan mejorar la eficacia tanto de la investigación criminal como de la actividad probatoria en el juicio oral y de la decisión final. La automatización del proceso penal es imparable, inevitable, y puede comportar ventajas para lograr una justicia penal más justa, más accesible, más eficiente. Pero también implica amenazas para los derechos y garantías inherentes al proceso penal, pensemos en el derecho al justo proceso o en la presunción de inocencia. Así se ha expresado el Consejo de Europa y ahí es donde encaja la Directiva UE 680/2016, que regula, entre otros temas, la protección de datos personales en el proceso penal y cuyo artículo 11 prohíbe decisiones basadas únicamente en tratamientos automatizados de datos personales salvo que se den determinadas garantías, obligatoriamente la garantía de intervención humana. Tras un examen de de la Directiva, y del reciente Anteproyecto de Ley Orgánica para su transposición al ordenamiento español, se ponen de manifiesto los problemas de la concreción de la “intervención humana”: cómo, cuándo y dónde debe producirse la intervención humana en la cadena del tratamiento automatizado que lleva a un resultado o a una decisión; y, sentado que no es posible prescindir del elemento humano, qué debe hacerse para garantizar que su intervención es material y no meramente formal, es decir, que se hace partícipe real de la decisión y no se limita a validar acríticamente el resultado o la decisión que proviene del tratamiento automatizado.

HERNÁNDEZ JIMÉNEZ, H.M., 2021a. La fiscalización urbanística de las segregaciones de terrenos. *Actualidad administrativa*, no. 2, pp. 10- 0. ISSN 1130-9946.

Las segregaciones de terrenos están sujetas a fiscalización previa de las entidades locales mediante la sujeción a la preceptiva licencia municipal.

HERNÁNDEZ JIMÉNEZ, H.M., 2021b. Planeamiento territorial y planeamiento urbanístico. *Actualidad administrativa*, no. 2, pp. 9- 0. ISSN 1130-9946.

La disciplina del urbanismo debe relacionarse íntimamente con la de la ordenación del territorio pues ésta, desde su vertiente supralocal, ha de contener determinaciones vinculantes para la ordenación urbanística de ámbito estrictamente municipal.

HERNANDEZ-BRITO, D., TELLA, J.L., CARRETE, M. y BLANCO, G., 2021. Successful hybridization between non-congeneric parrots in a small introduced population. *IBIS*, ISSN 0019-1019. DOI 10.1111/ibi.12936.

Introduced organisms have to overcome several obstacles, including the scarcity of conspecific mates, before becoming successfully established. We recorded interspecific mating in non-native areas (Spain) that involved Orange-winged Amazons *Amazona amazonica* with three non-congeneric parrot species: Scaly-headed Parrot *Pionus maximiliani*, Rose-ringed Parakeet *Psittacula krameri* and Monk Parakeet *Myiopsitta monachus*. Rather than mating with parakeets, a male

Orange-winged Amazon successfully bred with a female Scaly-headed Parrot, raising hybrid offspring during five consecutive years and thus increasing the initial population size from five to 12 individuals in 9 years. Non-congeneric hybridization seems to be extremely rare in wild parrots and, in this case, it may facilitate the successful establishment of a small introduced population in Tenerife, Spain.

HERRADOR SÁNCHEZ, J.Á., 2021. Juegos tradicionales en el antiguo egipto. *Athlos: Revista internacional de ciencias sociales de la actividad física, el juego y el deporte*, no. 22, pp. 7-21. ISSN 2253-6604.

Ancient history is able to provide us with a large and interesting information about the games played our ancestors. In this case, different Egyptologists have shown us over the years a valuable documentation through the discovery of playful elements through images in tombs and mastabas of Ancient Egypt. We present in this article, some activities related to the traditional game, and that have been immortalized both in iconography, as in archeology and museums. It is evident that the decoration in the form of painting and carved in relief in the tombs of some temples, represents in an impressive way scenes that help us to better understand many aspects of daily life in ancient Egypt from a ludic-motor point of view. We consider that the knowledge of the origins and development of games through history and geography enhances and increases respect for other cultures and peoples and for physical activity itself.

HERRERA-GUTIÉRREZ, M.R., 2021a. Herramientas para potenciar la participación y las capacidades organizativas: Qué es y cómo se debe usar este manual. *Participación y Género: Manual para la Intervención con Organizaciones Comunitarias*. S.l.: Aconcagua Libros, pp. 9-18. ISBN 978-84-12-04064-7.

HERRERA-GUTIÉRREZ, M.R., 2021b. *Participación y Género: Manual para la Intervención con Organizaciones Comunitarias*. S.l.: Aconcagua Libros. ISBN 978-84-12-04064-7.

Participación y Género es un material destinado a líderes comunitarios, personal efector de políticas públicas, personal orientado a la promoción de organizaciones sociales, estudiantes de Trabajo Social. Pretende ser una herramienta útil para: a) promover la participación dentro de las organizaciones sociales cohesionado el grupo que da cuerpo a la OSC; b) facilitar la mejora de indicadores de género en la gestión interna de la organización; y c) promover capacidades organizativas, tanto hacia adentro de la organización como en su relación con el entorno. Este manual es un producto aplicado que surge de la investigación participante «Movimientos Sociales, Participación y Género», financiada por la Agencia Andaluza de Cooperación Internacional al Desarrollo, que se llevó a cabo en Cuzco y Puno y en el que intervinieron equipos de investigación, del ámbito del Trabajo Social, de siete universidades iberoamericanas.

HIDALGO-HIDALGO, M., JIMÉNEZ, N. y LÓPEZ-PINTADO, D., 2021. Social influence and position effects. *Journal of Economic Behavior and Organization*,

vol. 182, pp. 113-131. ISSN 01672681. DOI 10.1016/j.jebo.2020.11.031.

A wide range of personal choices rely on the opinions or ratings of other individuals. This information has recently become a convenient way of simplifying the decision process. For instance, in online purchases of products and services, the possible choices or alternatives are often characterized by their position in a certain presentation order (or list) and their popularity, derived from an aggregate signal of the behavior of others. We have performed a laboratory experiment to quantify and compare popularity (or social influence) and position effects in a stylized setting of homogeneous preferences, with a small number of alternatives but considerable time constraints. Our design allows for the distinction between two phases in the decision process: (1) how agents search (i.e., not only which alternatives are analyzed but also in which order) and (2) how they ultimately choose. We find that in this process there are significant popularity and position effects. Position effects are stronger than social influence effects for predicting the searching behavior, however, social influence determines to a larger extent the actual choice. The reason is that social influence generates a double effect; it directly affects the final choice (independently on what alternative has been searched more thoroughly) and indirectly alters choice through the searching behavior which, in turn, is also affected by popularity. A novelty of our approach is that we account for personal traits and provide an individual analysis of sensitivity to both social influence and position effects. Surprisingly, we find that overconfident individuals are more influenceable, whereas other personal characteristics (e.g., gender and risk aversion) do not play a significant role in this context.

JU, B.-G., KIM, M., KIM, S. y MORENO-TERNERO, J.D., 2021. Fair international protocols for the abatement of GHG emissions. *Energy Economics* [en línea], vol. 94. ISSN 01409883. DOI 10.1016/j.eneco.2020.105091.

We study the design of fair international protocols for the abatement of GHG emissions. We formulate normative principles, pertaining to countries' population, emission history, and business as usual emissions, as axioms for allocation rules. We show that combinations of these axioms characterize the so-called equal per capita allocation rules, with or without historical accountability. The allocations provided by these rules are in stark contrast with the allocation suggested by the Kyoto Protocol, which is close to the allocation in proportion to the current and business-as-usual emissions, suggested by the equal per emission (grandfathering) rule. As we illustrate, the equal per capita allocations admit more emissions to developing countries with large populations. And, with historical accountability, developed countries with large historical emissions are clearly penalized.

KATARYNIUK, I., MORA BAJÉN, V.M. y PÉREZ, J.J., 2021. Emu deepening and sovereign debt spreads: Using political space to achieve policy space. *Documentos de trabajo del Banco de España*, no. 3, pp. 3-67. ISSN 0213-2710.

Sovereign spreads within the European Monetary Union (EMU) arise because markets price-in heterogeneous country fundamentals, but also re-denomination risks, given the incomplete nature of EMU. This creates a permanent risk of financial

fragmentation within the area. In this paper we claim that political decisions that signal commitment to safeguarding the adequate functioning of the euro area influence investors' valuations. We focus on decisions conducive to enhancing the institutional framework of the euro area ("EMU deepening"). To test our hypothesis we build a comprehensive narrative of events (decisions) from all documents and press releases issued by the Council of the EU and the European Council during the period January 2010 to March 2020. We categorize the events as dealing with: (i) economic and financial integration; (ii) fiscal policy; (iii) bailouts. With our extremely rich narrative at hand, we conduct event-study regressions with daily data to assess the impact of events on sovereign bond yields and find that indeed decisions on financial integration drive down periphery spreads. Moreover, while decisions on key subjects present a robust effect, this is not the case with prior discussions on those subjects at the Council level. Finally, we show that the impacts arise from reductions in peripheral sovereign spreads, and not by the opposite movement in core countries. We conclude that EU policy-makers have at their disposal significant "political space" to reduce fragmentation and gain "policy space".

LINTAS, A., SANCHEZ-CAMPUSANO, R., VILLA, A.E.P., GRUART, A. y DELGADO-GARCIA, J.M., 2021. Operant conditioning deficits and modified local field potential activities in parvalbumin-deficient mice. *SCIENTIFIC REPORTS*, vol. 11, no. 1. ISSN 2045-2322. DOI 10.1038/s41598-021-82519-3.

Altered functioning of GABAergic interneurons expressing parvalbumin (PV) in the basal ganglia-thalamo-cortical circuit are likely to be involved in several human psychiatric disorders characterized by deficits in attention and sensory gating with dysfunctional decision-making behavior. However, the contribution of these interneurons in the ability to acquire demanding learning tasks remains unclear. Here, we combine an operant conditioning task with local field potentials simultaneously recorded in several nuclei involved in reward circuits of wild-type (WT) and PV-deficient (PVKO) mice, which are characterized by changes in firing activity of PV-expressing interneurons. In comparison with WT mice, PVKO animals presented significant deficits in the acquisition of the selected learning task. Recordings from prefrontal cortex, nucleus accumbens (NAc) and hippocampus showed significant decreases of the spectral power in beta and gamma bands in PVKO compared with WT mice particularly during the performance of the operant conditioning task. From the first to the last session, at all frequency bands the spectral power in NAc tended to increase in WT and to decrease in PVKO. Results indicate that PV deficiency impairs signaling necessary for instrumental learning and the recognition of natural rewards.

LÓPEZ GARCÍA, D., BENLLOCH CALVO, L., CALABUIG TORMO, V., CARUCCI, P., DÍEZ TORRIJOS, I. y HERRERO GARCÉS, A., 2021. Las transiciones hacia la sostenibilidad como procesos de final abierto: Dinamización Local Agroecológica con horticultores convencionales de l'Horta de València. *Boletín de la Asociación de Geógrafos Españoles*, no. 88, pp. 7- 0. ISSN 0212-9426. 10.21138/bage.2968

In recent years, scientific research on sustainability transitions in the agri-food system has

been receiving growing attention, shaping differentiated proposals for different contexts and territorial scales. However, the possible transition trajectories undertaken from conventional situations and actors have been less studied. This article analyzes three case studies, in which the Local Agroecological Dynamization methodology has been applied to promote transitions towards sustainability in groups of conventional, water-fed vegetable farmers in the municipality of València. The discussion provides relevant empirical reflections on aspects poorly developed until now, such as the dialectics between deterministic and open-ended visions regarding the trajectories and specific contents of each transition process; the nature and features of the subject of the transitions; or the role of the agroecological approach in the conceptualization of transitions towards food systems sustainability. The article points out the importance of non-deterministic approaches for addressing complex situations, the need to deepen the analysis of the subjects of the transitions towards agri-food sustainability, and the development of methodological frameworks adapted to each specific profile.

LÓPEZ, S., SANCHEZ GARCIA, V., FERNÁNDEZ GARCÍA, J.C. y SÁEZ DE VILLARREAL SÁEZ, E., 2021. Acute Effects of Ballistic vs. Passive Static Stretching Involved in a Prematch Warm-up on Vertical Jump and Linear Sprint Performance in Soccer Players. *Journal of strength and conditioning research: the research journal of the NSCA*, vol. 35, no. 1, pp. 147-153. ISSN 1064-8011.

The purpose of this study was to compare the effects of introducing passive static and ballistic stretching in a standard soccer match warm-up. The variables addressed were the counter movement jump (CMJ), Abalakov jump, and the 40-m linear sprint. The sample was composed of 33 male subjects, divided into 2 age groups. U16 and adult players formed the groups, to cross check whether there were differences between them. Each group was further subdivided into 2 groups regarding the type of stretching carried out during the stretching phase. Before the warm-up, the tests previously described were assessed. In the experimental phase, standard stretching was carried out, consisting of an initial phase in which players had to execute continuous running; a general phase in which players had to make articulate moves; a technical phase in which players had to execute exercises with the ball; a 5 vs. 5 small-sided game was carried out during the tactical phase; and in the final phase, activation exercises and sprints were carried out by the players. Eventually, the same variables were assessed again once the warm-up was finished. There were no statistically significant differences between the 2 types of stretching included in the prematch warm-up. It can be concluded that ballistic and passive static stretching (<10 seconds) did not cause, under these circumstances, any effect in the assessed variables related to soccer performance (linear sprint, CMJ, and Abalakov). This has to be considered by coaches when devising soccer-related warm-ups.

LÓPEZ-LLUCH, G., 2021. Coenzyme Q homeostasis in aging: Response to non-genetic interventions. *Free Radical Biology and Medicine*, vol. 164, pp. 285-302. ISSN 08915849. DOI 10.1016/j.freeradbiomed.2021.01.024.

Coenzyme Q (CoQ) is a key component for many essential metabolic and antioxidant activities in cells in mitochondria and cell membranes. Mitochondrial dysfunction is one of the hallmarks of aging and age-related diseases. Deprivation of CoQ during aging can be the cause or the consequence of this mitochondrial dysfunction. In any case, it seems clear that aging-associated CoQ deprivation accelerates mitochondrial dysfunction in these diseases. Non-genetic longevity interventions, including CoQ dietary supplementation, can increase CoQ levels in mitochondria and cell membranes improving mitochondrial activity and delaying cell and tissue deterioration by oxidative damage. In this review, we discuss the importance of CoQ deprivation in aging and age-related diseases and the effect of longevity interventions on CoQ levels and synthesis and CoQ-dependent antioxidant activities.

LUNA, Á., ROMERO-VIDAL, P. y ARRONDO, E., 2021. Predation and scavenging in the city: A review of spatio-temporal trends in research. *Diversity*, vol. 13, no. 2, pp. 1-16. ISSN 14242818. DOI 10.3390/d13020046.

Many researchers highlight the role of urban ecology in a rapidly urbanizing world. Despite the ecological and conservation implications relating to carnivores in cities, our general understanding of their potential role in urban food webs lacks synthesis. In this paper, we reviewed the scientific literature on urban carnivores with the aim of identifying major biases in this topic of research. In particular, we explored the number of articles dealing with predation and scavenging, and assessed the geographical distribution, biomes and habitats represented in the scientific literature, together with the richness of species reported and their traits. Our results confirmed that scavenging is largely overlooked compared to predation in urban carnivore research. Moreover, research was biased towards cities located in temperate biomes, while tropical regions were less well-represented, a pattern that was more evident in the case of articles on scavenging. The species reported in both predation and scavenging articles were mainly wild and domestic mammals with high meatbased diets and nocturnal habits, and the majority of the studies were conducted in the interior zone of cities compared to peri-urban areas. Understanding the trophic role of carnivores in urban environments and its ecological consequences will require full recognition of both their predation and scavenging facets, which is especially desirable given the urban sprawl that has been predicted in the coming decades.

LUNA-TRIGUERO, A., VICENT-LUNA, J.M., JANSMAN, M.J., ZAFEIROPOULOS, G., TSAMPAS, M.N., VAN DE SANDEN, M.C.M., AKSE, H.N. y CALERO, S., 2021. Enhancing separation efficiency in European syngas industry by using zeolites. *Catalysis Today*, vol. 362, pp. 113-121. ISSN 09205861. DOI 10.1016/j.cattod.2020.03.061.

Syngas is traditionally used in industry for production of fuels in the kerosene, gasoline and diesel range via Fischer-Tropsch, for the manufacture of bulk chemicals like ammonia, methanol and dimethyl ether and for synthesis of a whole array of fine chemicals. The carbon monoxide/hydrogen ratio of the syngas is an important

design variable to maximize production of these compounds. Therefore, the search of effective processes that enable said ratio adjustment as well as individual compound purification is an essential and ongoing effort for industry. In this work, we propose a development of a zeolite-based separation process to obtain carbon dioxide-neutral fuels and chemicals. The process designed is based on gas uptake and release, combining separation efficiency with low separation costs. Calculation of separation behavior has been done for mixtures generated by plasmolysis of CO<sub>2</sub>. Carbon dioxide dissociation into CO and O<sub>2</sub> and as a result a mixture of carbon monoxide, oxygen and a residual carbon dioxide is obtained. Therefore, the purification of CO becomes necessary. Here we provide a purification process design based in multicomponent adsorption and separation in commercial available zeolites. The process identifies NaX and NaY as the most suitable zeolites for separation in a wide range of operating conditions.

MAC FADDEN, I., SANTANA, M., VÁZQUEZ-CANO, E. y LÓPEZ-MENESES, E., 2021. A science mapping analysis of ‘marginality, stigmatization and social cohesion’ in WoS (1963–2019). *Quality and Quantity*, vol. 55, no. 1, pp. 275-293. ISSN 00335177. DOI 10.1007/s11135-020-01004-7.

The current socio-economic and politico-humanitarian crisis is reflected in the progressive entanglement of social cohesion. The increase of social, political, and economic vulnerabilities, consequently with the perspective of local human development, make one realize the importance of dimensions such as social capital—and in the networks of relationships according to a perspective of the subject—that occur in a specific urban context where territory is understood as a resource and networks, building new environments of citizen empowerment, avoiding to increase marginal structural contexts. With these premises, this research aims to analyze the scientific production with the greatest impact on the social cohesion crisis, interpreted as a consequence of advanced marginality, a complex set of economic, political, and socio-structural vulnerabilities in relation to stigmatization, a key element in the vulnerability of subjects. SciMAT, a bibliometric science mapping software tool based on co-word analysis and h-index, is applied using a sample of 4297 articles from 1963 to 2018 published in 1119 journals main communication in the database Web of Science. The results show how social exclusion and stigma are strongly related to the understanding of the constant increase in social vulnerabilities.

MANZANO-LEÓN, A., CAMACHO-LAZARRAGA, P., GUERRERO-PUERTA, M.A., GUERRERO-PUERTA, L., ALIAS, A., AGUILAR-PARRA, J.M. y TRIGUEROS, R., 2021. Development and validation of a questionnaire on motivation for cooperative playful learning strategies. *International Journal of Environmental Research and Public Health*, vol. 18, no. 3, pp. 1-10. ISSN 16617827. DOI 10.3390/ijerph18030960.

Playful learning strategies, such as educational gamification, game-based learning, and escape rooms are increasingly being incorporated into the university education system. In this study, it aims to develop and validate an instrument to analyze

motivation regarding the use of playful learning strategies in university students. A total of 450 university students aged between 18 and 55 (Mean = 22.72; Standard Deviation = 5.01) were part of the sample, with whom playful strategies were implemented during the 2019/2020 school year. The results obtained in the confirmatory factor analysis indicate that the questionnaire on motivation for playful learning strategies has adequate psychometric properties to assess the motivation and perception of student learning in the implementation of ludic strategies in the classroom in the Spanish university context.

MARTÍN PERÉ, E.M. y M. SILVA GALÀN, D., 2021. Programas de reparación administrativa en el marco de la justicia transicional. Una experiencia de reparación colectiva en el municipio de Simití, Colombia. *Revista General de Derecho Administrativo*, no. 56, pp. 21- 0. ISSN 1696-9650.

Collective reparation is one of the types of administrative reparation in the experience of Transitional Justice in Colombia. The article analyzes a case of collective experience taking into account the normative approach or the new concept of «transformative repair». Thus, the experiences of reparation should be a reflection of a corrective and not only a restorative justice, according to the spirit of the reference standard, but the complexity of the implementation of this idea and its novelty, makes it difficult to concretize it in any of the repair experiences.

MARTÍN-DURÁN, J.M., VELLUTINI, B.C., MARLÉTAZ, F., CETRANGOLO, V., CVETESIC, N., THIEL, D., HENRIET, S., GRAU-BOVÉ, X., CARRILLO-BALTODANO, A.M., GU, W., KERBL, A., MARQUEZ, Y., BEKKOUCHE, N., CHOURROUT, D., GÓMEZ-SKARMETA, J.L., IRIMIA, M., LENHARD, B., WORSAAE, K. y HEJNOL, A., 2021a. Conservative route to genome compaction in a miniature annelid. *Nature Ecology and Evolution*, vol. 5, no. 2, pp. 231-242. ISSN 2397334X. DOI 10.1038/s41559-020-01327-6.

The causes and consequences of genome reduction in animals are unclear because our understanding of this process mostly relies on lineages with often exceptionally high rates of evolution. Here, we decode the compact 73.8-megabase genome of *Dimorphilus gyrotiliatus*, a meiobenthic segmented worm. The *D. gyrotiliatus* genome retains traits classically associated with larger and slower-evolving genomes, such as an ordered, intact Hox cluster, a generally conserved developmental toolkit and traces of ancestral bilaterian linkage. Unlike some other animals with small genomes, the analysis of the *D. gyrotiliatus* epigenome revealed canonical features of genome regulation, excluding the presence of operons and trans-splicing. Instead, the gene-dense *D. gyrotiliatus* genome presents a divergent Myc pathway, a key physiological regulator of growth, proliferation and genome stability in animals. Altogether, our results uncover a conservative route to genome compaction in annelids, reminiscent of that observed in the vertebrate *Takifugu rubripes*.

MARTÍNEZ LÓPEZ, E.J., RUIZ-ARIZA, A., DE LA TORRE CRUZ, M.J. y SUÁREZ-MANZANO, S., 2021. Alternatives of Physical Activity within School Times and Effects on Cognition. A Systematic Review and Educational Practical Guide. *Psicología educativa*, vol. 27, no. 1, pp. 37-50. ISSN 1135-755X.

This review analyses educational intervention studies that have researched the effects of physical activity in school on schoolchildren's cognition. Twenty-nine intervention studies carried out between January 2005 and the end of June 2019 were retrieved from five databases. Fourteen papers analysed the physically activity in academic lessons (PAAL) method, nine analysed the effects of active lesson breaks (ALB), two analysed active recess (AR) intervention, and three analysed combined physical activity (CPA) interventions consisting of two or more types of physical activity. Physical activity in school time has acute and chronic positive effects on cognition in children. In all the interventions (PAAL, ALB, AR, and CPA) short-term high intensity physical activity sessions improved cognitive performance. Medium- to long-term moderate vigorous physical activity sessions also produced improvements in cognitive performance. The implications of including CPA programmes in the school timetable are discussed and practical guidelines with recommendations are offered.

MEDIAVILLA, M.E. y MANUEL ECHAVARREN, J., 2021. Ecofeminismos y variedades de ambientalismos: Estado de la cuestión. *RES. Revista Española de Sociología*, vol. 30, no. 1, pp. 17- 0. ISSN 1578-2824. 10.22325/fes/res.2021.12

Within the current context of the emergence of new forms of environmental activism in a worrying scenario of global uncertainty, this article sets out the main theories to approach the study of environmentalism, its discourses and its practices, in relation to different kinds of environmentalisms and ecofeminisms. It is found that ecofeminisms have a special narrative desire emphasizing the need for cares in the environmental movement claims. This proposal was born in social and local praxis but spread out to other areas becoming more frequent and legitimized in academic research, in politics and in the international public agenda. Looking at the different links between environmentalism and feminisms offers an opportunity to approach the several uses and appropriations of ecofeminisms, enabling our capacity for abstraction and criticism to imagine and build different, possible and desirable horizons.

MERCHÁN MURILLO, A. y LÓPEZ VELA, A., 2021. Vulnerabilidades en el uso del internet de las cosas en relación con los datos personales. *Cuestiones actuales sobre protección de datos en España y México*. S.l.: Tirant lo Blanch, pp. 171-185. ISBN 978-84-13-55191-3.

MOLINER-VELAZQUEZ, B., FUENTES-BLASCO, M. y GIL-SAURA, I., [sin fecha]. Segmenting customers according to online word-of-mouth about hotels. *SERVICE BUSINESS*, ISSN 1862-8516. DOI 10.1007/s11628-020-00435-4.

There is a renewed interest in the study of online word-of-mouth behavior due to the increasing use of the Internet and the development of social networks. This paper

focuses on the receiver perspective to analyze the unequal influence of the antecedents of online consumer searches. The main purpose is to detect the heterogeneity of the effect of different motivations (convenience, risks reduction and social reassurance) and the volume of comments on the willingness to check online reviews. Based on 393 guests of hotels, a mixture regression model indicates the existence of three internally consistent segments, which reveal the varying influence on consumer intentions to look at online comments.

MOORE, P. y LÓPEZ STOELTING, S., 2021. My favorite subject is lengua because the teacher es un crack: translanguaging in CLIL student writing. *CLIL Journal of Innovation and Research in Plurilingual and Pluricultural Education*, vol. 4, no. 1, pp. 7-18. ISSN 2604-5613. 10.5565/rev/clil.49

We interpret CLIL as bilingual education inasmuch as it is can help create bilinguals; and we are interested in the behaviour of emergent bilinguals. We also subscribe to the idea of holistic linguistic repertoires instead of separable languages. In this research we partially replicate research conducted by Celaya (2008) and Agustín-Llach (2009) in order to explore instances of translanguaging in CLIL writing. We focus on three categories of L1-infused language: borrowing, translating and foreignizing. Although they have previously been treated as errors, we suggest teachers could more usefully consider them as naturally occurring communicative strategies: snapshots of emergent bilingualism in their students. We compare two datasets of student writing gathered at a 3.5-year interval and discuss the evolution of their competence as evidenced in the texts they produce.

MORÁN-CARRILLO, J.-M., MARQUES, E. y FLORES SÁNCHEZ, M., 2021. El nacimiento del Trabajo Social Ibérico: un análisis histórico comparado. *Cuadernos de trabajo social*, vol. 34, no. 1, pp. 79-90. ISSN 0214-0314.

El artículo tiene por objeto analizar el surgimiento y la maduración del Trabajo Social/Serviço Social en España y Portugal mediante un análisis histórico comparado. Para lograr el objetivo se definen los hitos político-administrativos e institucional-académicos de cada país, desde su nacimiento hasta su consolidación. La investigación redonda en los elementos de naturaleza ideológica y formativa. Expuestos los datos, que se hacen explícitos mediante cuadros comparativos para establecer simetrías y diferencias entre uno y otro, se concluye afirmando que el Trabajo Social peninsular se define por lo que se comparte más que por lo que le separa. Sus elementos identificadores básicos son: un acceso tardío a las políticas keynesianas, una experiencia limitante de la dictadura y el logro de la democracia parlamentaria mediante transiciones no cruentas.

MORENO FERNÁNDEZ, O., PUIG GUTIÉRREZ, M. y RODRÍGUEZ MARÍN, F., 2021. Educación ambiental y formación del profesorado: Una experiencia con realidad aumentada como recurso didáctico. *Iber: Didáctica de las ciencias sociales, geografía e historia*, no. 102, pp. 15-19. ISSN 1133-9810.

Abordar las cuestiones socioambientales en el aula es un desafío para los profesionales de la educación. La experiencia presentada se realizó durante el curso académico 2018-2019 en el Grado de Educación Primaria de la Universidad de Sevilla y se basó en la creación de materiales en torno a la realidad aumentada que sirvieran a los futuros docentes en sus prácticas profesionales.

MUÑOZ BELLERÍN, M., 2021. El cuerpo en la producción de conocimiento: Investigación aplicada en grupos de estudiantes universitarios de Perú y Ecuador. *RELIES: Revista del Laboratorio Iberoamericano para el Estudio Sociohistórico de las Sexualidades*, no. 5, pp. 1-18. ISSN 2659-8620.

La corporalidad es en un ámbito central de estudio tanto en las Ciencias Sociales como en la Artes Plásticas. Sin embargo, son escasas las perspectivas que de una forma interdisciplinar analizan las potencialidades de la pedagogía del cuerpo. Este artículo se plantea profundizar en las técnicas corporales como herramientas de conocimiento en la educación superior. Para ello se describe una experiencia transversal llevada a cabo con tres grupos de alumnos universitarios de la Universidad de Cuenca (Ecuador), de la Universidad Pontificia Católica del Perú y la Escuela Nacional Superior de Arte Dramático (Perú), en la tentativa de sistematizar procesos de aprendizajes tomando el cuerpo como clave de interpretación de los fenómenos sociales y culturales. Unas dinámicas que parten de representaciones corporales, a partir de las que los estudiantes articulan la experiencia social con sus propias vivencias corporales.

MUÑOZ CONDE, F., 2021. Reinhart Maurach. Vida y obra de un penalista alemán del siglo XX. *Revista penal*, no. 47, pp. 176-192. ISSN 1138-9168.

NAPOLIS, G., SALMERON, J.L. y VANHOOF, K., 2021. Construction and Supervised Learning of Long-Term Grey Cognitive Networks. *IEEE Transactions on Cybernetics*, vol. 51, no. 2, pp. 686-695. ISSN 21682267. DOI 10.1109/TCYB.2019.2913960.

Modeling a real-world system by means of a neural model involves numerous challenges that range from formulating transparent knowledge representations to obtaining reliable simulation errors. However, that knowledge is often difficult to formalize in a precise way using crisp numbers. In this paper, we present the long-term grey cognitive networks which expands the recently proposed long-term cognitive networks (LTCNs) with grey numbers. One advantage of our neural system is that it allows embedding knowledge into the network using weights and constricted neurons. In addition, we propose two procedures to construct the network in situations where only historical data are available, and a regularization method that is coupled with a nonsynaptic backpropagation algorithm. The results have shown that our proposal outperforms the LTCN model and other state-of-the-art methods in terms of accuracy.

NARANJO-ORELLANA, J., RUSO-ÁLVAREZ, J.F. y ROJO-ÁLVAREZ, J.L., 2021. Comparison of Omegawave Device and an Ambulatory ECG for RR Interval Measurement at rest. *International Journal of Sports Medicine*, vol. 42, no. 2, pp. 138-146. ISSN 01724622. DOI 10.1055/a-1157-9220.

The aim of this study was to validate the measurements of the beat intervals taken at rest by the Omegawave ®device by comparing them to an ambulatory electrocardiogram system. For this purpose, the electrocardiogram was digitally processed, time-aligned, and scrutinized for its suitable use as gold-standard. Rest measurements were made for 10 minutes on 5 different days to 10 men and 3 women ( $24.8 \pm 5.05$  years;  $71.82 \pm 11.02$  kg;  $174.35 \pm 9.13$  cm). RR intervals were simultaneously recorded using the Omegawave device and a Holter electrocardiogram. The processing of Holter electrocardiogram signals included the detrending of baseline noise and a high-pass filtering for emphasizing the QRS complexes and attenuating the T waves. After obtaining the RR intervals from the electrocardiogram, those from the Omegawave device were automatically aligned to them with cross-correlation digital processing techniques and compared to check whether both measurements could be considered superimposable. A Bland-Altman analysis was applied to the 5 measurements made for all subjects. The Omegawave device exhibited very strong agreement with a quality-controlled Holter electrocardiogram. Deviations not exceeding 25 ms could be expected in 95% of the cases, which is within manageable ranges both for clinical practice and for sports.

NGUYEN, T.L., NOKIN, M.-J., TERES, S., TOME, M., BODINEAU, C., GALMAR, O., PASQUET, J.-M., ROUSSEAU, B., VAN LIEMPD, S., FALCON-PEREZ, J.M., RICHARD, E., MUZOTTE, E., REZVANI, H.-R., PRIAULT, M., BOUCHECAREILH, M., REDONNET-VERNHET, I., CALVO, J., UZAN, B., PFLUMIO, F., FUENTES, P., TORIBIO, M.L., KHATIB, A.-M., SOUBEYRAN, P., MURDOCH, P.D.S. y DURAN, R., V., [sin fecha]. Downregulation of Glutamine Synthetase, not glutaminolysis, is responsible for glutamine addiction in Notch1-driven acute lymphoblastic leukemia. *Molecular Oncology*, ISSN 1574-7891. DOI 10.1002/1878-0261.12877.

The cellular receptor Notch1 is a central regulator of T-cell development, and as a consequence, Notch1 pathway appears upregulated in > 65% of the cases of T-cell acute lymphoblastic leukemia (T-ALL). However, strategies targeting Notch1 signaling render only modest results in the clinic due to treatment resistance and severe side effects. While many investigations reported the different aspects of tumor cell growth and leukemia progression controlled by Notch1, less is known regarding the modifications of cellular metabolism induced by Notch1 upregulation in T-ALL. Previously, glutaminolysis inhibition has been proposed to synergize with anti-Notch therapies in T-ALL models. In this work, we report that Notch1 upregulation in T-ALL induced a change in the metabolism of the important amino acid glutamine, preventing glutamine synthesis through the downregulation of glutamine synthetase (GS). Downregulation of GS was responsible for glutamine addiction in Notch1-driven T-ALL both in vitro and in vivo. Our results also confirmed an increase in glutaminolysis mediated by Notch1. Increased glutaminolysis resulted in the activation of the mammalian

target of rapamycin complex 1 (mTORC1) pathway, a central controller of cell growth. However, glutaminolysis did not play any role in Notch1-induced glutamine addiction. Finally, the combined treatment targeting mTORC1 and limiting glutamine availability had a synergistic effect to induce apoptosis and to prevent Notch1-driven leukemia progression. Our results placed glutamine limitation and mTORC1 inhibition as a potential therapy against Notch1-driven leukemia.

OCHOA-HUESO, R., PLAZA, C., MORENO-JIMÉNEZ, E. y DELGADO-BAQUERIZO, M., 2021. Soil element coupling is driven by ecological context and atomic mass. *Ecology Letters*, vol. 24, no. 2, pp. 319-326. ISSN 1461023X. DOI 10.1111/ele.13648.

The biogeochemical cycling of multiple soil elements is fundamental for life on Earth. Here, we conducted a global field survey across 16 chronosequences from contrasting biomes with soil ages ranging from centuries to millions of years. For this, we collected and analysed 435 topsoil samples (0–10 cm) from 87 locations. We showed that high levels of topsoil element coupling, defined as the average correlation among nineteen soil elements, are maintained over geological timescales globally. Cross-biome changes in plant biodiversity, soil microbial structure, weathering, soil pH and texture, and mineral-free unprotected organic matter content largely controlled multi-element coupling. Moreover, elements with heavier atomic mass were naturally more decoupled and unpredictable in space than those with lighter mass. Only the coupling of carbon, nitrogen and phosphorus, which are essential to life on Earth, deviated from this predictable pattern, suggesting that this anomaly may be an undeniable fingerprint of life in terrestrial soils.

ORTEGA-BECERRA, M., SÁNCHEZ-MORENO, M. y PAREJA-BLANCO, F., 2021. Effects of Cluster Set Configuration on Mechanical Performance and Neuromuscular Activity. *Journal of strength and conditioning research*, vol. 35, no. 2, pp. 310-317. ISSN 15334287. DOI 10.1519/JSC.0000000000003907.

The aim of this study was to compare the effects of different cluster set (CS) configurations on mechanical performance and electromyography (EMG) activity during the bench press (BP) exercise. Fourteen strength-trained men (age  $23.0 \pm 2.4$  years; height  $1.76 \pm 0.08$  m; body mass  $78.3 \pm 12.2$  kg) performed 3 different protocols in the BP exercise consisting of 3 sets of 12 repetitions at 60% of 1 repetition maximum with interset rests of 2 minutes, differing in the set configuration: (a) traditional sets (TRDs), (b) cluster sets of 4 repetitions (CS4), and (c) cluster sets of 2 repetitions (CS2). Intra-set rests of 30 seconds were interposed for CS protocols. The mean propulsive values of force, velocity, and power output were measured for every repetition by synchronizing a linear velocity transducer with a force platform. The root mean square (RMS) and median frequency (MDF) for pectoralis major (PM) and triceps brachii (TB) muscles were also recorded for every repetition. Force, velocity, and power values progressively increased as the number of intra-set rests increased (TRD < CS4 <

CS2). The CS2 protocol exhibited lower RMS-PM than CS4 and TRD for almost all sets. In addition, TRDs showed significantly lower MDF-TB than CS2 for all sets and lower MDF-TB than CS4 during the third set. In conclusion, more frequent intraset rests were beneficial for maintaining mechanical performance, which may be mediated, from a neuromuscular perspective, by lesser increases in EMG amplitude and attenuated reductions in EMG frequency.

PAREJO GUZMÁN, M.J., 2021. Los estados de alarma en España durante la pandemia del COVID-19 en relación al derecho a la libertad religiosa, a la religiosidad y a las religiones. *Revista General de Derecho Canónico y Derecho Eclesiástico del Estado*, no. 55, pp. 9- 0. ISSN 1696-9669.

La crisis de Salud Pública ocasionada por el coronavirus, COVID-19, ha supuesto en España un completo cambio en la forma de vida de todos los españoles. Como se verá, las medidas que se han ido adoptando por el Gobierno de la Nación y por los Gobiernos de las distintas Comunidades Autónomas de nuestro país, se han traducido en una suspensión de hecho, en todo o en parte, del ejercicio de la práctica mayoría de los derechos y de las libertades fundamentales de los ciudadanos por razones de salud pública. Uno de los derechos más afectados por las medidas adoptadas ha sido el derecho a la libertad de circulación de los ciudadanos, afectando sobremanera al ejercicio del derecho a la libertad religiosa y del derecho a la libertad de culto durante el período de tiempo que ha durado el primer estado de alarma, de marzo a junio de 2020, y durante el tiempo posterior en un segundo y nuevo estado de alarma, decretado el pasado 25 de octubre y que se prorrogará hasta el próximo 9 de mayo de 2021.

PIETRAPIANA, F., FERIA-DOMINGUEZ, J.M. y TRONCOSO, A., 2021. Applying wrapper-based variable selection techniques to predict MFIs profitability: evidence from Peru. *JOURNAL OF DEVELOPMENT EFFECTIVENESS*, ISSN 1943-9342. DOI 10.1080/19439342.2021.1884119.

In this paper, we analyse the main factors explaining the profitability (ROA) of Microfinance Institutions (MFIs) in Peru from 2011 to 2017. We apply three wrapper techniques to a sample of 168 Peruvian MFIs and 69 attributes obtained from MIX Market database. After running the algorithms M5MODIFIER LETTER PRIME, k-nearest neighbours (KNN) and Random Forest, we find that the M5MODIFIER LETTER PRIME algorithm provides the best fit for predicting ROA. Particularly, the key variable of the regression tree is the percentage of expenses over assets and, depending on its value, it is followed by net income after taxes and before donations, or profit margins.

PIÑEIRO-COSSIO, J., FERNÁNDEZ-MARTÍNEZ, A., NUVALA, A. y PÉREZ-ORDÁS, R., 2021. Psychological wellbeing in physical education and school sports: A systematic review. *International Journal of Environmental Research and Public Health*, vol. 18, no. 3, pp. 1-16. ISSN 16617827. DOI 10.3390/ijerph18030864.

Mental health in children and adolescents has become an increasingly important topic in recent years. It is against this backdrop that physical education and school sports

play an important role in promoting psychological wellbeing. The aim of this review was to analyse interventions for improving psychological wellbeing in this area. To this end, a literature review was conducted using four databases (WOS, SPORTDiscus, SCOPUS and ERIC) and the following keywords: psychological wellbeing, physical education, and school sports. Twenty-one articles met the inclusion criteria. The results showed that interventions varied greatly in terms of duration and used a wide range of strategies (conventional and non-conventional sports, physical activity, games, etc.) for promoting psychological wellbeing, primarily among secondary school students. There was a lack of consensus as to the conceptualisation of the construct of psychological wellbeing, resulting in a variety of tools and methods for assessing it. Some studies also suggested a link between psychological wellbeing and other variables, such as basic psychological needs and self-determination. Finally, this study provides a definition of psychological wellbeing through physical activity based on our findings.

POYATO-BONILLA, J., SANCHEZ-GUERRERO, M.J., CERVANTES, I., GUTIERREZ, J.P. y VALERA, M., [sin fecha]. Genetic parameters for canalization analysis of morphological traits in the Pura Raza Espanol horse. *JOURNAL OF ANIMAL BREEDING AND GENETICS*, ISSN 0931-2668. DOI 10.1111/jbg.12537.

Measurements from 13 different morphological traits of importance in the Pura Raza Espanol (PRE) horse were used to estimate genetic and environmental parameters following a heteroscedastic model in which data were assigned to stallions. Data sets used ranged from 20,610 (height at withers) to 48,486 measurements (length of shoulder), and the number of animals analysed in the pedigrees varied from 17,662 (height at withers) to 23,962 (dorsal-sternal diameter). Results of heritabilities of the traits varied from 0.09 (width of chest and upper neck line) to 0.30 (muscular development). Further, genetic correlations between traits and their environmental variability were estimated, obtaining values from -0.56 (muscular development) to 0.69 (height at withers). Also, predicted breeding values for the mean and for the environmental variability were obtained for all horses in the pedigrees, providing individual information about not only the expected phenotypic value of their offspring but also the expected heterogeneity among them. Results proved the possibility of improving morphological traits and reducing the heterogeneity of offspring at a time by the selection of animals and levels of systematic effects.

PRIETO-JIMÉNEZ, E., LÓPEZ-CATALÁN, L., LÓPEZ-CATALÁN, B. y DOMÍNGUEZ-FERNÁNDEZ, G., 2021. Sustainable development goals and education: A bibliometric mapping analysis. *Sustainability (Switzerland)*, vol. 13, no. 4, pp. 1-20. ISSN 20711050. DOI 10.3390/su13042126.

The 2030 Sustainable Development Agenda sets out 17 Sustainable Development Goals (SDGs) aimed at improving life in all its dimensions, covering all sectors, with a particular emphasis on education. The study presented here focuses on universities as priority organisations and agents of change within the sphere of their social commitment. We thus conducted an analysis of the related scientific

production as well as a bibliometric mapping, identifying the main publications indexed in the Web of Science, within its main collection. Focusing on scientific production, we examine the types of documents published, the evolution of the number of publications, the countries of origin of the publications, the most cited sources and articles, together with the most productive authors and a co-citation analysis. Regarding the bibliometric mapping analysis, the five core clusters included in the study were: SDGs in general; SDG 4 on Quality Education; Education for Sustainable Development; Higher Education; and Education Management. Among the main conclusions reached, we would emphasise the need for a change in role and function of university education to tackle sustainable development.

RACERO, F.J., BUENO, S. y GALLEGU, M.D., 2021. Can the OSS-focused education impact on OSS implementations in companies? A motivational answer through a Delphi-based consensus study. *Electronics (Switzerland)*, vol. 10, no. 3, pp. 1-14. ISSN 20799292. DOI 10.3390/electronics10030277.

In the last few decades, the Open Source Software (OSS) diffusion has grown remarkably in companies. In this context, the present study has analyzed the factors that incentivize OSS implementations for enterprise purposes, linking two perspectives: (1) managerial and (2) educational. Thus, the Delphi methodology was applied to a panel of experts with two aims: (1) to know managers' perceptions about organizational users' motivations toward OSS after receiving OSS training and (2) to develop a forecasting study to examine the OSS diffusion in the medium term in companies and educational centers. In this context, the Self-Determination Theory (SDT) was the theoretical approach through which we identified the motivational factors. Specifically, three SDT motivations were added: (1) autonomy, (2) competence and (3) relatedness. The 104 selected experts were managers from companies with employees who have studied in educational centers where OSS usage is mandatory. The results show that managers perceive that OSS training incentivizes OSS implementations in companies. At the same time, user motivations are considered to be extremely relevant, especially autonomy. In addition, the results foresee a similar level of OSS implementation in the business and educational fields in the medium term. Finally, conclusions, practical implications and limitations are discussed.

RIVERO, S., RODRIGUEZ-REAL, G., MARIN, I. y HUERTAS, P., 2021. MRGBP, a member of the NuA4 complex, inhibits DNA double-strand break repair. *FEBS OPEN BIO*, ISSN 2211-5463. DOI 10.1002/2211-5463.13071.

The repair of DNA breaks takes place in the context of chromatin and thus involves the activity of chromatin remodelers. The nucleosome acetyltransferase of H4 (NuA4) remodeler complex enables DNA break repair by relaxing flanking chromatin. Here, we show that MRG domain binding protein (MRGBP), a member of this complex, acts as a general inhibitor of DNA double-strand break repair. Upon its downregulation, repair is generally increased. This is particularly evident for the stimulation of early events of homologous recombination. Thus, MRGBP has an opposing role to the main catalytic subunits of the NuA4 complex. Our data suggest that MRGBP acts by limiting the activity of this complex in DNA repair, specifically by narrowing the extent of DNA-end resection.

RODRÍGUEZ BENOT, A., 2021. Prólogo. *Plurinacionalidad y Derecho Internacional Privado de la familia y sucesiones*. S.I.: Tirant lo Blanch, pp. 25-29. ISBN 9,7884135593e+12.

RODRÍGUEZ-IZQUIERDO, R.M., 2021. Perceptions of linguistically responsive teaching in language specialist teachers and mainstream teachers. *Porta Linguarum: revista internacional de didáctica de las lenguas extranjeras*, no. 35, pp. 25-41. ISSN 1697-7467.

La enseñanza lingüísticamente receptiva (ELR) significa comprender el papel que tiene la lengua en la construcción de entornos de aprendizaje significativos. En este artículo, la enseñanza lingüísticamente receptiva se ve como una forma de implementar la acción de educación intercultural. Este estudio cualitativo analizó datos de 10 profesores especialistas en lengua y profesores tutores para examinar sus percepciones de la capacidad de respuesta lingüística en la enseñanza del español como segundo idioma para estudiantes inmigrantes. Los resultados revelaron que existen diferencias en las percepciones de los docentes sobre la enseñanza lingüísticamente receptiva. En general, los docentes de lengua, en comparación con los profesores tutores, mostraron perspectivas más amplias relacionadas con el marco ELR. Los datos cualitativos sugirieron que la capacitación en la enseñanza de L2 y las experiencias previas en la enseñanza de estudiantes inmigrantes influyen en las percepciones de los participantes. Finalmente, el estudio indica que, si bien los docentes consideraron varios elementos del marco ELR en sus discusiones sobre sus prácticas, mucho más trabajo es necesario con respecto a los aspectos de habilidades y conocimientos para comprender la adquisición de un segundo idioma para preparar profesores lingüísticamente receptivos

RODRÍGUEZ-JUAN, E., RODRÍGUEZ-ROMERO, C., FERNÁNDEZ-BOLAÑOS, J., FLORIDO, M.C. y GARCIA-BORREGO, A., 2021. Phenolic compounds from virgin olive oil obtained by natural deep eutectic solvent (NADES): effect of the extraction and recovery conditions. *Journal of Food Science and Technology*, vol. 58, no. 2, pp. 552-561. ISSN 00221155. DOI 10.1007/s13197-020-04567-3.

Environmentally friendly natural deep eutectic solvents (NADES) have been shown to efficiently extract a wide range of phenolic compounds from virgin olive oil (VOO). The objective of this work was to optimize the yield of olive oil phenols extracted by NADES based on xylitol/choline chloride (Xyl/ChCl). Different extraction and recovery conditions were investigated, including the effect of different extraction operating parameters (temperature, time, VOO:NADES ratio) and subsequent recovery conditions (XAD resin height, wash-water and eluent volume and pH). The highest concentration of phenols (555.36 mg/kg VOO) was obtained from extraction at 40 °C for 1 h, with a 1:1 ratio, using an adsorption resin XAD-16 with bed height of 10 cm, 250 mL acidified wash-water and 300 mL EtOH 100% as eluent. No statistically significant loss of the sum of phenolic compounds was observed when compared with the concentration values obtained by direct analysis in HPLC without the elimination of NADES. Additionally, a sequential desorption with different concentration of ethanol was used to determine the effect of the solvent concentration on polyphenol yield. Polar

compounds, such as hydroxytyrosol and tyrosol, were recovered at 81.7% and 83.6%, respectively with 50 and 80% ethanol; however, 100% ethanol was required for the complete elution of oleacein (3,4-DHPEA-EDA) and oleocanthal (p-HPEA-EDA). In this paper we present an effective process for the extraction of polyphenols from VOO by NADES for direct analysis in HPLC and for the recovery and concentration of polyphenols by removing the solvent (NADES) with no losses of yield and solvent recycling.

RODRÍGUEZ-RODRÍGUEZ, M., AGUILERA, H., GUARDIOLA-ALBERT, C. y FERNÁNDEZ-AYUSO, A., 2021. Climate Influence Vs. Local Drivers in Surface Water-Groundwater Interactions in Eight Ponds of Doñana National Park (Southern Spain). *Wetlands* [en línea], vol. 41, no. 2. ISSN 02775212. DOI 10.1007/s13157-021-01425-6.

This paper aims to determine how both climate and local drivers, such as groundwater withdrawals influence surface water - groundwater interactions in Groundwater Dependent Ecosystems (GDEs). We studied the hydroperiod in eight of the most representative ponds of Doñana National Park (southern Spain) during a 21-year period. We analyzed the average flooded phase of each pond as well as the average depth of the piezometric level in nearby piezometers. In addition, we used the average precipitation as a proxy of the water inputs onto the ponds. The average flooded surface was taken by a previous analysis of satellite images and the depth to the piezometric level was field measured at a monthly time step. We found out that the average precipitation was slightly lower during the second decade (675 mm/y vs. 552 mm/y). Nonetheless, 5/8 of the ponds showed a much higher shrinking of the flooded surface that could not be explained only by a reduction in the precipitation events. Local drivers were found to be decisive in the degradation of 3/8 of the ponds: those closer to a pumping facility and located at a higher altitude.

ROSALES-TRISTANCHO, A., CARAZO, A.F. y BREY, R., 2021. A study of the willingness of Spanish drivers to pay a premium for ZEVs. *Energy Policy* [en línea], vol. 149. ISSN 03014215. DOI 10.1016/j.enpol.2020.112091.

Over the next few decades the Spanish government aims to increase the, so far, insignificant market share of zero emission vehicles (ZEVs) in the Spanish vehicle fleet. However, there are several barriers that hamper this market penetration, one of the most important being the higher purchase prices of zero emission cars compared to their conventional counterparts. This paper presents the results of a survey of drivers (n = 1474) conducted in Spain towards year-end 2017 to assess their willingness to purchase ZEVs. The willingness to pay responses were analyzed using finite mixture models to identify the different underlying profiles in the sample. Purchase prices emerge as a major obstacle for most of the sample. The results reveal the existence of different subpopulations with different profiles and willingness to pay. Earlier adopters are those with a higher level of education, higher income level, more extensive knowledge of ZEVs, and greater awareness of the negative consequences of the use of fossil fuels in transportation in terms of environmental pollution and economic dependence. These results justify the importance of public education campaigns in Spain on the characteristics and

advantages of ZEVs compared to conventional cars.

SALVATIERRA ORTEGA, P., 2021. Una perspectiva de una estudiante de Trabajo Social en el Voluntariado Mentoría Juvenil - Asociación Ariadna. *Transformación: Revista de Trabajo Social de Sevilla*, no. 4, pp. 27-28. ISSN 2659-8558.

SÁNCHEZ, J., SERRAT, S., CASTILLO, E. y NUVIALA, A., 2021. Confirmatory factor analysis and validity of the sexual harassment scale in football refereeing. *International Journal of Environmental Research and Public Health*, vol. 18, no. 4, pp. 1-10. ISSN 16617827. DOI 10.3390/ijerph18041374.

Inequalities between men and women in the workplace are reflected in professional sports, specifically football refereeing. This phenomenon sometimes becomes sexual harassment since it is a stereotypically considered male profession in which women are a minority. To measure that behavior, it is necessary to count on valid and reliable tools. Therefore, the goal of this study was to determine the factorial structure and the discriminant and convergent validity of the 'sexual experiences questionnaire', version of the Department of Defence (SEQ-DoD). Eighty-nine male football referees and ninety-four female football referees, with a mean age of  $23.30 \pm 4.85$  years, participated in this study conducted questionnaire in Andalusia, Spain. A confirmatory factor analysis was performed using the robust maximum-likelihood estimation method. The goodness of fit was assessed, and the factorial invariance was calculated to determine the stability of the model. Subsequently, the validity was confirmed. The results corroborated the validity and reliability of the questionnaire adapted to the population studied. Therefore, it can be used as a research instrument.

SÁNCHEZ RODRÍGUEZ, M.D., 2021. Jóvenes con adicciones comportamentales, el efecto del confinamiento. *Transformación: Revista de Trabajo Social de Sevilla*, no. 4, pp. 11-12. ISSN 2659-8558.

SÁNCHEZ-CARRACEDO, F., MORENO-PINO, F.M., ROMERO-PORTILLO, D. y SUREDA, B., 2021. Education for sustainable development in Spanish university education degrees. *Sustainability (Switzerland)*, vol. 13, no. 3, pp. 1-24. ISSN 20711050. DOI 10.3390/su13031467.

This work presents an analysis of student perception of Spanish university education degrees regarding their training in sustainable development. A sample of 942 students was used. The methodology consists of analyzing the results of a survey answered by the first-and fourth-year students from nine education degree courses in four Spanish universities. Comparison of the perception of learning by fourth-year students against those of the first year enables improvements in learning regarding sustainability to be ascertained. The questionnaire consists of 18 questions concerning four sustainability competencies: C1-Critical contextualization of knowledge, C2-Sustainable use of resources, C3-Participation in community processes, and C4-Ethics. Two composite indicators are defined to analyze the absolute learning (achieved on completion of their studies) and the relative learning (achieved with respect to what should have been

achieved) declared by the students in each competency, degree and university. The results show that students declare an improvement in all their sustainability competencies, although the results of the final learning are far from those expected: they have learned only 27% of what they should have learned. Moreover, the learning achieved in the four competencies depends on the degree and the university.

SANCHEZ-CASTRO, E.E., PAJUELO-REYES, C., TEJEDO, R., SORIA-JUAN, B., TAPIA-LIMONCHI, R., ANDREU, E., HITOS, A.B., MARTIN, F., CAHUANA, G.M., GUERRA-DUARTE, C., DE ASSIS, T.C.S., BEDOYA, F.J., SORIA, B., CHÁVEZ-OLÓRTEGUI, C. y TEJEDO, J.R., 2021. Mesenchymal Stromal Cell-Based Therapies as Promising Treatments for Muscle Regeneration After Snakebite Envenoming. *Frontiers in Immunology* [en línea], vol. 11. ISSN 16643224. DOI 10.3389/fimmu.2020.609961.

Snakebite envenoming is a global neglected disease with an incidence of up to 2.7 million new cases every year. Although antivenoms are so far the most effective treatment to reverse the acute systemic effects induced by snakebite envenoming, they have a limited therapeutic potential, being unable to completely neutralize the local venom effects. Local damage, such as dermonecrosis and myonecrosis, can lead to permanent sequelae with physical, social, and psychological implications. The strong inflammatory process induced by snake venoms is associated with poor tissue regeneration, in particular the lack of or reduced skeletal muscle regeneration. Mesenchymal stromal cells (MSCs)-based therapies have shown both anti-inflammatory and pro-regenerative properties. We postulate that using allogeneic MSCs or their cell-free products can induce skeletal muscle regeneration in snakebite victims, improving all the three steps of the skeletal muscle regeneration process, mainly by anti-inflammatory activity, paracrine effects, neovascularization induction, and inhibition of tissue damage, instrumental for microenvironment remodeling and regeneration. Since snakebite envenoming occurs mainly in areas with poor healthcare, we enlist the principles and potential of MSCs-based therapies and discuss regulatory issues, good manufacturing practices, transportation, storage, and related-procedures that could allow the administration of these therapies, looking forward to a safe and cost-effective treatment for a so far unsolved and neglected health problem.

SARASOLA FERNÁNDEZ, A., CAVA FERNÁNDEZ, C. y DE MIGUEL MUÑOZ, L., 2021. Análisis del concepto Persona Mayor en la prensa sevillana. *Transformación: Revista de Trabajo Social de Sevilla*, no. 4, pp. 25-26. ISSN 2659-8558.

SARASOLA, J.L. y ROIZ VÁZQUEZ, A., 2021. Estado actual de las pensiones en España. *Transformación: Revista de Trabajo Social de Sevilla*, no. 4, pp. 13-16. ISSN 2659-8558.

SOLAGUREN-BEASCOA, M., BUJAKOWSKA, K.M., MÉJÉCASE, C., EMMENEGGER, L., ORHAN, E., NEUILLÉ, M., MOHAND-SAÏD, S., CONDROYER, C., LANCELOT, M.-E., MICHIELS, C., DEMONTANT, V., ANTONIO, A., LETEXIER, M., SARAIVA, J.-P., LONJOU, C., CARPENTIER, W., LÉVEILLARD, T., PIERCE, E.A., DOLLFUS, H., SAHEL, J.-A.,

BHATTACHARYA, S.S., AUDO, I. y ZEITZ, C., 2021. WDR34, a candidate gene for non-syndromic rod-cone dystrophy. *Clinical Genetics*, vol. 99, no. 2, pp. 298-302. ISSN 00099163. DOI 10.1111/cge.13872.

Rod-cone dystrophy (RCD), also called retinitis pigmentosa, is characterized by rod followed by cone photoreceptor degeneration, leading to gradual visual loss. Mutations in over 65 genes have been associated with non-syndromic RCD explaining 60% to 70% of cases, with novel gene defects possibly accounting for the unsolved cases. Homozygosity mapping and whole-exome sequencing applied to a case of autosomal recessive non-syndromic RCD from a consanguineous union identified a homozygous variant in WDR34. Mutations in WDR34 have been previously associated with severe ciliopathy syndromes possibly associated with a retinal dystrophy. This is the first report of a homozygous mutation in WDR34 associated with non-syndromic RCD.

SUÁREZ LANTARÓN, B., CASTILLO RECHE, I.S. y LÓPEZ MEDIALDEA, A.M., 2021. Tutoría académica universitaria apoyada mediante WhatsApp: conocer sus ventajas y salvar sus desventajas. *Revista electrónica interuniversitaria de formación del profesorado*, vol. 24, no. 1, pp. 189-203. ISSN 1575-0965. 10.6018/reifop.394631

This paper describes a teaching research and innovation project whose aim is to assess the effect of using the WhatsApp application for monitoring and academic tutoring of university students of the Faculty of Education of Murcia and Extremadura. The data were collected through two questionnaires filled out by the students before and after the development of the subjects and application of the project, a discussion group with the teachers and the analysis of the content of the messages sent through the application. The results obtained were analyzed taking into account the use and use of the application, the satisfaction of the participants and the advantages and disadvantages described. The results show that proper use of the application is made, more than conventional tutoring, its advantages are enhanced and its disadvantages are weakened and both teachers and students show high levels of satisfaction. Therefore, we can conclude that we are facing a tool with a high potential for supporting academic tutoring.

TORRES, J.F., HADJOUT, D., SEBAA, A., MARTÍNEZ-ÁLVAREZ, F. y TRONCOSO, A., 2021. Deep Learning for Time Series Forecasting: A Survey. *Big Data*, vol. 9, no. 1, pp. 3-21. ISSN 21676461. DOI 10.1089/big.2020.0159.

Time series forecasting has become a very intensive field of research, which is even increasing in recent years. Deep neural networks have proved to be powerful and are achieving high accuracy in many application fields. For these reasons, they are one of the most widely used methods of machine learning to solve problems dealing with big data nowadays. In this work, the time series forecasting problem is initially formulated along with its mathematical fundamentals. Then, the most common deep learning architectures that are currently being successfully applied to predict time series are described, highlighting their advantages and limitations. Particular attention is given to feed forward networks, recurrent neural networks

(including Elman, long-short term memory, gated recurrent units, and bidirectional networks), and convolutional neural networks. Practical aspects, such as the setting of values for hyper-parameters and the choice of the most suitable frameworks, for the successful application of deep learning to time series are also provided and discussed. Several fruitful research fields in which the architectures analyzed have obtained a good performance are reviewed. As a result, research gaps have been identified in the literature for several domains of application, thus expecting to inspire new and better forms of knowledge.

VELA SÁNCHEZ, A.J., 2021. Claves para la indemnización por daño moral en la violencia de género sobre la pareja. *Diario La Ley*, no. 9774, pp. 6- 0. ISSN 1989-6913.

Nuestro Derecho de daños parte de que la indemnización procedente debe procurar la reparación integral de la víctima, lo que supondrá que se fijen los daños morales que acompañan a los personales y patrimoniales. En cuanto a la reparación del pretium doloris, es cierto que su compleja indemnización no hace desaparecer el perjuicio ocasionado, pero sirve de solemne desagravio y de autorizada afirmación de la estimación social de los bienes lesionados que, en esta sede de violencia de género sobre la pareja, son, fundamentalmente y respecto de la mujer violentada, la dignidad de la víctima y la paz familiar.

VELASCO PERDIGONES, J.C., 2021. El contrato de servicios con el delegado de protección de datos: propuesta de contenido. *Revista Aranzadi Doctrinal*, no. 2, pp. 6- 0. ISSN 1889-4380.

The legal scenario for personal data protection has provided that managers and/or supervisors are duty bound to appoint a new professional profile: the data protection officer (DPO). The RGPD [General Register of Data Protection\_] envisages the services contract as one of the instruments for regulating the relationship between the parties. The aim of this paper is to conduct an in-depth study of the services contract referred to in the rule, in order to draft a contract content proposal independently of the provisions stemming from the will of the contracting parties. On some occasions, professionals have been obliged to configure contractual relationships with the added complexity of uncertainty over the nature of their obligations.

VILLAVERDE, T., MAGUILLA, E., LUCENO, M. y HIPPEL, A.L., 2021. Assessing the sensitivity of divergence time estimates to locus sampling, calibration points, and model priors in a RAD-seq phylogeny of *Carex* section *Schoenoxiphium*. *JOURNAL OF SYSTEMATICS AND EVOLUTION*, ISSN 1674-4918. DOI 10.1111/jse.12724.

Restriction site-associated DNA sequencing (RAD-seq) and related methods have become relatively common approaches to resolve species-level phylogeny. It is not clear, however, whether RAD-seq data matrices are well suited to relaxed clock inference of divergence times, given the size of the matrices and the abundance of missing data. We investigated the sensitivity of Bayesian relaxed

clock estimates of divergence times to alternative analytical decisions on an empirical RAD-seq phylogenetic matrix. We explored the relative contribution of secondary calibration strategies, amount of missing data, and the data partition analyzed to overall variance in divergence times inferred using BEAST MCMC analyses of *Carex* section *Schoenoxiphium* (Cyperaceae)-a recent radiation for which we have nearly complete species sampling of RAD-seq data. The crown node for *Schoenoxiphium* was estimated to be 15.22 (9.56-21.18) Ma using a single calibration point and low missing data, 11.93 (8.07-16.03) Ma using multiple calibration points and low missing data, and 8.34 (5.41-11.22) using multiple calibrations but high missing data. We found that using matrices with more than half of the individuals with missing data inferred younger mean ages for all nodes. Moreover, we have found that our molecular clock estimates are sensitive to the positions of the calibration(s) in our phylogenetic tree (using matrices with low missing data), especially when only a single calibration was applied to estimate divergence times. These results argue for sensitivity analyses and caution in interpreting divergence time estimates from RAD-seq data.

ZHANG, J., FENG, Y., WU, M., CHEN, R., LI, Z., LIN, X., ZHU, Y. y DELGADO-BAQUERIZO, M., 2021. Evaluation of microbe-driven soil organic matter quantity and quality by thermodynamic theory. *mBio*, vol. 12, no. 1, pp. 1-14. ISSN 21612129. DOI 10.1128/mBio.03252-20.

Microbial communities, coupled with substrate quality and availability, regulate the stock (formation versus mineralization) of soil organic matter (SOM) in terrestrial ecosystems. However, our understanding of how soil microbes interact with contrasting substrates influencing SOM quantity and quality is still very superficial. Here, we used thermodynamic theory principles and Fourier transform ion cyclotron resonance mass spectrometry (FTICR-MS) to evaluate the linkages between dissolved organic matter (DOM [organic substrates in soil that are readily available]), thermodynamic quality, and microbial communities. We investigated soils from subtropical paddy ecosystems across a 1,000-km gradient and comprising contrasting levels of SOM content and nutrient availability. Our region-scale study suggested that soils with a larger abundance of readily accessible resources (i.e., lower Gibbs free energy) supported higher levels of microbial diversity and higher SOM content. We further advocated a novel phylotype-level microbial classification based on their associations with OM quantities and qualities and identified two contrasting clusters of bacterial taxa: phylotypes that are highly positively correlated with thermodynamically favorable DOM and larger SOM content versus those which are associated with less-favorable DOM and lower SOM content. Both groups are expected to play critical roles in regulating SOM contents in the soil. By identifying the associations between microbial phylotypes of different life strategies and OM qualities and quantities, our study indicates that thermodynamic theory can act as a proxy for the relationship between OM and soil microbial communities and should be considered in models of soil organic matter preservation. **IMPORTANCE** Microbial communities are known to be important drivers of organic matter (OM) accumulation in terrestrial ecosystems. However, despite the importance of these soil microbes and processes, the mechanisms behind these microbial-SOM associations remain poorly understood. Here, we used the

principles of thermodynamic theory and novel Fourier transform ion cyclotron resonance mass spectrometry techniques to investigate the links between microbial communities and dissolved OM (DOM) thermodynamic quality in soils across a 1,000-km gradient and comprising contrasting nutrient and C contents. Our region-scale study provided evidence that soils with a larger amount of readily accessible resources (i.e., lower Gibbs free energy) supported higher levels of microbial diversity and larger SOM content. Moreover, we created a novel phylotype-level microbial classification based on the associations between microbial taxa and DOM quantities and qualities. We found two contrasting clusters of bacterial taxa based on their level of association with thermodynamically favorable DOM and SOM content. Our study advances our knowledge on the important links between microbial communities and SOM. Moreover, by identifying the associations between microbial phylotypes of different life strategies and OM qualities and quantities, our study indicates that thermodynamic theory can act as a proxy for the relationship between OM and soil microbial communities. Together, our findings support that the association between microbial species taxa and substrate thermodynamic quality constituted an important complement explanation for soil organic matter preservation.