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Artículos en acceso abierto. (Octubre 2021)

<http://uvadoc.uva.es/handle/10324/48880> Gómez, Manuel. Título: Enrichment of Cakes and Cookies with Pulse Flours. A Review. Publicación: Food Reviews International. 2021. DOI: 10.1080/87559129.2021.1983591

Resumen: Legumes are rich in protein, fiber, and minerals. Several studies have shown the health benefits of their consumption. For these reasons, interest in the use of legume flour in bakery products has grown in recent years. However, legumes have strong off-flavors that prevent their use in high percentages. Sweet flavors are able to mask these off-flavors, and thus sweet bakery products such as biscuits and cakes seem to be suitable items for enrichment with legume flours.

<http://uvadoc.uva.es/handle/10324/48908> Soto Guzmán, Marvelia Cenit; Torres Cuevas, Edwin; González Ortega, Alfonso; Palacio Martínez, Laura; Lozano, Ángel E.; Freeman, Benny D.; Prádanos del Pico, Pedro Lourdes; Hernández Giménez, Antonio. Título: Gas separation by mixed matrix membranes with porous organic polymer Inclusions within o-hydroxypolyamides containing m-terphenyl moieties. Publicación: Polymers, 2021, vol. 13, n. 6, 931. DOI:10.3390/polym13060931

Resumen: A hydroxypolyamide (HPA) manufactured from 2,2-bis(3-amino-4-hydroxy phenyl)-hexafluoropropane (APAF) diamine and 5'-terbutyl-m-terphenyl-4,4''-dicarboxylic acid chloride (tBTpCl), and a copolyimide produced by stoichiometric copolymerization of APAF and 4,4' (hexafluoroisopropylidene) diamine (6FpDA), using the same diacid chloride, were obtained and used as polymeric matrixes in mixed matrix membranes (MMMs) loaded with 20% (w/w) of two porous polymer networks (tritycene-isatin, PPN-1, and tritycene-trifluoroacetophenone, PPN-2).

<http://uvadoc.uva.es/handle/10324/48931> Otero Fernández, A.; Díaz, Paola Andrea Borda; Otero, José Antonio; Ibáñez, Raquel; Maroto Valiente, Ángel; Palacio Martínez, Laura; Prádanos del Pico, Pedro Lourdes; Carmona del Río, Francisco Javier; Hernández Giménez, Antonio. Título: Morphological, chemical and electrical characterization of a family of commercial nanofiltration polyvinyl alcohol coated polypiperazineamide membranes. Publicación: European Polymer Journal, 2020, vol. 126, 109544. DOI: 10.1016/j.eurpolymj.2020.109544

Resumen: Three AFC membranes from PCI, of the thin film composite (TFC) nanofiltration type, have been characterized by using XPS, AFM, Contact angles, Zeta potential and permeation experiments. This plethora of complimentary methods portrays a deep and exhaustive description of these membranes that could be used to tune fabrication and modification of nanofiltration membranes to get better properties.

<http://uvadoc.uva.es/handle/10324/48934> Soto Guzmán, Marvelia Cenit; Aguilar Lugo, Carla; Rodríguez, Sara; Palacio Martínez, Laura; Lozano, Ángel E.; Prádanos del Pico, Pedro Lourdes; Hernández Giménez, Antonio. Título: Enhancement of CO₂/CH₄ permselectivity via thermal rearrangement of mixed matrix membranes made from an o-hydroxy polyamide with an optimal load of a porous polymer network. Publicación: Separation and Purification Technology, 2020, vol. 247, 116895. DOI: 10.1016/j.seppur.2020.116895



Resumen: Mixed matrix membranes, MMMs, consisting of variable loads of a porous polymer network, PPN, within an o-hydroxypolyamide, HPA (6FCI-APAF, made from the reaction between 2,2-bis [4-chlorocarbonylphenyl] hexafluoropropane, 6FCI, and 2,2-bis (3-amino-4-hydroxyphenyl) hexafluoropropane, APAF), have been thermally treated to induce the rearrangement of HPA to a polybenzoxazole (β -TR-PBO). HPA is 6FCI-APAF was loaded with a PPN synthesized, by us, by combining triptycene (TRP) and trifluoroacetophenone (TFAP). Mechanical, thermal and morphological properties of the membranes have been determined.

<http://uvadoc.uva.es/handle/10324/48930> Tanis-Kanbur, Melike Begum; Peinador Dávila, René Israel; Calvo Díez, José Ignacio; Hernández Giménez, Antonio; Chew, Jia Wei. Título: Porosimetric membrane characterization techniques: A review. Publicación: Journal of Membrane Science, 2021, vol. 619, 118750. DOI: 10.1016/j.memsci.2020.118750

Resumen: Membrane technology is of significant importance in water treatment applications, and also gaining momentum in other separations due to advantages such as environmentally friendly operation, less complex and lower-cost operating conditions compared to alternative options. To provide for sustainable and efficient membrane-based applications, the selection of appropriate membranes is crucial.

<http://uvadoc.uva.es/handle/10324/48933> Salamanca, Mónica; López Serna, Rebeca; Palacio Martínez, Laura; Hernández Giménez, Antonio; Prádanos del Pico, Pedro Lourdes; Peña Miranda, María del Mar Agripina. Título: Study of the rejection of contaminants of emerging concern by a biomimetic aquaporin hollow fiber forward osmosis membrane. Publicación: Journal of Water Process Engineering, 2021, vol. 40, 101914. DOI: 10.1016/j.jwpe.2021.101914

Resumen: Forward osmosis (FO) plays an increasingly important role in membrane processes because of its advantages compared to traditional pressure-driven membrane processes. There are different types of water-selective FO membranes. In this study, a biomimetic hollow fiber module comprising an active layer of polyamide thin film composite (TFC) with integrated aquaporin proteins and an effective area of 0.6 m² is used to study the rejection of 24 Contaminants of Emerging Concern (CECs).

<http://uvadoc.uva.es/handle/10324/48939> Álvarez Quintana, Sara; Carmona Del Río, Francisco Javier; Palacio Martínez, Laura; Hernández Giménez, Antonio; Prádanos del Pico, Pedro Lourdes. Título: Water viscosity in confined nanoporous media and flow through nanofiltration membranes. Publicación: Microporous and Mesoporous Materials, 2020, vol. 303, 110289. DOI: 10.1016/j.micromeso.2020.110289

Resumen: Nanofiltration flux and selectivity depend on the mass transfer through the nanometric pores. Among other factors, including charges and dielectric constant for the charged species, viscosity is of crucial relevance. Here we study how viscosity changes in confined media in the nanometric range.

<http://uvadoc.uva.es/handle/10324/48972> López Martín, Manuel; Sánchez Esguevillas, Antonio Javier; Arribas Sánchez, Juan Ignacio; Carro Martínez, Belén. Título: Supervised contrastive learning over prototype-label embeddings for network intrusion detection. Publicación: Information Fusion, 2021, (In Press). DOI: 10.1016/j.inffus.2021.09.014

Resumen: Contrastive learning makes it possible to establish similarities between samples by comparing their distances in an intermediate representation space (embedding space) and using loss functions designed to attract/repel similar/dissimilar samples. The distance comparison is



based exclusively on the sample features. We propose a novel contrastive learning scheme by including the labels in the same embedding space as the features and performing the distance comparison between features and labels in this shared embedding space.

<http://uvadoc.uva.es/handle/10324/48998> López Alonso, Juan Carlos; Macario Farto, Alberto; Maris, Assimo; Alkorta, Ibon; Blanco Rodríguez, Susana. Título: How aromatic fluorination exchanges the interaction role of pyridine with carbonyl compounds: The formaldehyde adduct. Publicación: Chemistry – A European Journal, 2021, vol. 27, n. 55, p. 13870 –13878 DOI: 10.1002/chem.202102163

Resumen: The rotational spectrum of the weakly bound complex pentafluoropyridine formaldehyde has been investigated using Fourier transform microwave spectroscopy. From the analysis of the rotational parameters of the parent species and of the ¹³C and ¹⁵N isotopologues, the structural arrangement of the adduct has been unambiguously established.

<http://uvadoc.uva.es/handle/10324/49020> Cacho Pérez, Mariano; Gómez Carretero, Juan. Título: Plastic calculation of slender beam frames systematic method based on mechanism theory. Publicación: Structures, 2021, vol. 34. p. 2840-2847. DOI: 10.1016/j.istruc.2021.09.033

Resumen: This work focuses on the limit analysis or plastic calculation of slender beam planar frames using a direct method based on the Virtual Works Principle (VWP). The method consists in looking for the structure's collapse mechanism from the equilibrium equations posed by means of virtual problems in displacements.

<http://uvadoc.uva.es/handle/10324/49018> Vela Corona, Antonio José; Villanueva Barrero, Marina; Ronda Balbás, María Felicidad. Título: Low-frequency ultrasonication modulates the impact of annealing on physicochemical and functional properties of rice flour. Publicación: Food Hydrocolloids, 2021, 120, 106933. DOI: 10.1016/j.foodhyd.2021.106933

Resumen: Ultrasonication (US) is a green technology used to physically modify flours to increase their industrial range of applicability. The aim of this work was to study the combined effect that dual US and annealing (ANN) treatments have on starch and protein structure of rice flour, at 20, 40, 50 and 60 °C. Results showed clear modifications of functional, thermal and pasting properties of flours, as well as rheological properties of gels made from them.

<http://uvadoc.uva.es/handle/10324/49022> Acevedo, Belén A.; Villanueva Barrero, Marina; Chaves, María G.; Avanza, María V.; Ronda Balbás, María Felicidad. Título: Modification of structural and physicochemical properties of cowpea (*Vigna unguiculata*) starch by hydrothermal and ultrasound treatments. Publicación: Food Hydrocolloids, 2021, 107266. DOI: 10.1016/j.foodhyd.2021.107266

Resumen: Cowpea (*Vigna unguiculata*) starch was physically modified by heat moisture treatment (HMT) or HMT followed by ultrasound treatment (UST). The modifications of starch crystallinity, morphology and digestibility as well as thermal, and pasting characteristics were evaluated [...]. The results demonstrate that HMT and HMT-UST expand the opportunities and potential of using modifying cowpea starches as ingredients in several food applications.

<http://uvadoc.uva.es/handle/10324/49013> Ramos Andrés, Marta; Aguilera Torre, Beatriz; García Serna, Juan. Título: Biorefinery of discarded carrot juice to produce carotenoids and fermentation



products. Publicación: Journal of Cleaner Production, 2021, vol. 323, 129139. DOI: 10.1016/j.jclepro.2021.129139

Resumen: Discarded carrots are a major food waste that is produced from cultivation to sale. This waste has high humidity, which generates not only economic but also environmental problems, requiring a specific biorefinery for its valorization.

<http://uvadoc.uva.es/handle/10324/49015> Ramos Andrés, Marta; Aguilera Torre, Beatriz; García Serna, Juan. Título: Production of purified hemicellulose-pectin fractions of different molecular weight from discarded carrots by hydrothermal treatment followed by multistep ultrafiltration/diafiltration. Publicación: Journal of Cleaner Production, 2021, vol. 321, 128923. DOI: 10.1016/j.jclepro.2021.128923

Resumen: Hemicelluloses and pectins are good candidates as biopolymers for the formation of products such as packaging films. Purified freeze-dried fractions of hemicelluloses and pectins, of different molecular weights, were obtained by treating hydrothermal extracts (140, 160, and 180 °C) of discarded carrots with ultrafiltration membranes (30, 10, 5, and 1 kDa). After each ultrafiltration, several cycles of diafiltration with partial water reuse were applied, obtaining a better separation and purification.

<http://uvadoc.uva.es/handle/10324/49050> García Escartín, Juan Carlos; Gimeno, Vicent; Moyano Fernández, Julio José. Título: Optimal approximation to unitary quantum operators with linear optics. Publicación: Quantum Information Processing, 2021, vol. 20, n. 9, n art. 314, p. 1-18. DOI:10.1007/s11128-021-03254-2

Resumen: Linear optical systems acting on photon number states produce many interesting evolutions, but cannot give all the allowed quantum operations on the input state. Using Toponogov's theorem from differential geometry, we propose an iterative method that, for any arbitrary quantum operator U acting on n photons in m modes, returns an operator \tilde{U} which can be implemented with linear optics. The approximation method is locally optimal and converges.

<http://uvadoc.uva.es/handle/10324/49030> Fernández Delgado, Marina; Amo Mateos, Esther del; García Cubero, María Teresa; Coca Sanz, Mónica; Lucas Yagüe, Susana. Título: Phosphorus recovery from organic waste for its agronomic valorization: technical and economic evaluation. Publicación: Journal of Chemical Technology & Biotechnology, 2021. DOI:10.1002/jctb.6926

Resumen: The present work investigates the use of municipal mixed waste compost (MMWC) residue for phosphorus(P) recycling from a technical, economic, and environmental perspective. The study aims to obtain liquid extracts rich in P from MMWC with a low heavy metals content, suitable for their subsequent precipitation in the struvite form. The effect of inorganic (sulfuric/nitric) and organic (oxalic/citric) acids at different molarities and temperatures was studied using technical analysis.

<http://uvadoc.uva.es/handle/10324/49038> Jiménez Garrido, Jesús Javier; Sanz Gil, Javier; Schindl, Gerhard. Título: Surjectivity of the asymptotic borel map in Carleman–Roumieu ultraholomorphic classes defined by regular sequences. Publicación: Revista de la Real Academia de Ciencias Exactas, Físicas y Naturales. Serie A. Matemáticas, 2021, vol.115, n. 4, n. art. 181, p. 1-18. DOI: 10.1007/s13398-021-01119-y

Resumen: We study the surjectivity of, and the existence of right inverses for, the asymptotic Borel map in Carleman–Roumieu ultraholomorphic classes defined by regular sequences in the sense of



E. M. Dyn'kin. We extend previous results by J. Schmets and M. Valdivia, by V. Thilliez, and by the authors, and show the prominent role played by an index, associated with the sequence, that was introduced by V. Thilliez.

<http://uvadoc.uva.es/handle/10324/49024> Álvarez Zapatero, Pablo; Vega Hierro, Andrés; Aguado Rodríguez, Andrés. Título: A neural network potential for searching the atomic structures of pure and mixed nanoparticles. Application to ZnMg nanoalloys with an eye on their anticorrosive properties. Publicación: Acta Materialia, 2021, vol. 220, 117341. DOI: 10.1016/j.actamat.2021.117341

Resumen: The accurate description of the potential energy landscape of moderate-sized nanoparticles is a formidable task, but of paramount importance if one aims to characterize, in a realistic way, their physical and chemical properties. We present here a Neural Network potential able to predict structures of pure and mixed nanoparticles with an error in energy and forces of the order of chemical accuracy as compared with the values provided by the theoretical method used in the training process, in our case the density functional theory.

<http://uvadoc.uva.es/handle/10324/49072> Fernández Delgado, Marina; Amo Mateos, Esther del; Lucas Yagüe, Susana; García Cubero, María Teresa; Coca Sanz, Mónica. Título: Liquid fertilizer production from organic waste by conventional and microwave-assisted extraction technologies: Techno-economic and environmental assessment. Publicación: Science of The Total Environment, 2021, In Press. 150904. DOI: 10.1016/j.scitotenv.2021.150904

Resumen: The use of mineral fertilizers in agriculture has significantly increased to support the growing global food demand. Organic fertilizers are produced from renewable waste materials to overcome the drawbacks of inorganic fertilizers. The development of novel production processes of organic fertilizers entails a significant advance towards the circular economy that reincorporates waste materials into the production cycle. In this work, the economic and environmental feasibility of an industrial plant with a treatment capacity of 300 kg/h of organic waste for the production of liquid fertilizers has been performed.

<http://uvadoc.uva.es/handle/10324/49067> Alemany, M. M. G.; Souto Casares, Jaime; González Tesedo, Luis Enrique; González Fernández, David José. Título: Static structure, collective dynamics and transport coefficients in the liquid Li-Pb alloy. An ab initio molecular dynamics study. Publicación: Journal of Molecular Liquids, 2021, vol. 344, 117775. DOI: 10.1016/j.molliq.2021.117775

Resumen: Several static and dynamic properties of the liquid Li-Pb alloy at diverse compositions, have been calculated by means of ab initio molecular dynamics simulation study. This alloy has attracted much attention because of the finding of fast sound at the LiO:80PbO:20 composition and also the technological interest of the eutectic composition, LiO:17PbO:83, as a component of the blanket in fusion reactors. Results are reported for total static structure factors, which are compared with the available experimental data.

<http://uvadoc.uva.es/handle/10324/49060> Adamovic, Tijana; Tarasov, Dmitry; Demirkaya, Emre; Balakshin, Mikhail; Cocero Alonso, María José. Título: A feasibility study on green biorefinery of high lignin content agro-food industry waste through supercritical water treatment. Publicación: Journal of Cleaner Production, 2021, vol. 323, 129110. DOI: 10.1016/j.jclepro.2021.129110



Resumen: This work discusses hydrolysis of defatted grape in supercritical water (SCW) at 380 °C and 260 bar from 0.18 s to 1 s focusing attention to sugars recovery in the liquid phase of the product and detailed characterization of remaining solid phase enriched in polyaromatics (e.g. lignin, flavonoids, etc.). After the longest reaction time of 1 s, 56% of carbohydrates could be recovered in the liquid phase, as a result of carbohydrate hydrolysis.

<http://uvadoc.uva.es/handle/10324/49058> Pazo Cepeda, María Victoria; Aspromonte, Soledad Guadalupe; Alonso Sánchez, Gloria Esther. Título: Extraction of ferulic acid and feruloylated arabinoxylo-oligosaccharides from wheat bran using pressurized hot water. Publicación: Food Bioscience, 2021, vol. 44, part A, 101374. DOI: 10.1016/j.fbio.2021.101374

Resumen: Pressurized water was tested as solvent for the hydrolysis and extraction of Ferulic acid (FA) and feruloylated arabinoxylooligosaccharides (F-AXOS) from destarched wheat bran (DWB). Results were dependent on the severity factor of the process (combination of temperature and time), obtaining the maximum extraction yields at 200 °C and 3.5 min.

<http://uvadoc.uva.es/handle/10324/48988> Salamanca Parra, Jacobo Manuel; Álvarez Silva, Óscar; Higgins, Aldemar; Tadeo Rico, Fernando Juan. Título: Analysis of the Intake Locations of Salinity Gradient Plants Using Hydrodynamic and Membrane Models. Publicación: Water, 2021, 13(9), 1133. DOI: <https://doi.org/10.3390/w13091133>

Resumen: The gain in net power produced by Salinity Gradient plants in river mouths due to the optimal location of water intakes is analysed in this paper. More precisely, this work focuses on stratified river mouths and the membrane-based technology of Pressure-Retarded Osmosis. A methodology for this analysis is proposed and then applied to a case study in Colombia.

<http://uvadoc.uva.es/handle/10324/49112> Salvo Comino, Coral; García Hernández, Celia; García Cabezón, Ana Cristina; Rodríguez Méndez, María Luz. Título: Promoting laccase sensing activity for catechol detection using LBL assemblies of chitosan/ionic liquid/phthalocyanine as immobilization surfaces. Publicación: Bioelectrochemistry, 2020, vol. 132, 107407. DOI: 10.1016/j.bioelechem.2019.107407

Resumen: The performance of electrochemical laccase-based biosensors can be improved by immobilizing the enzyme on composite Layer-by-Layer (LbL) supports in which materials with complementary functions are combined.

<http://uvadoc.uva.es/handle/10324/49115> García Hernández, Celia; Salvo Comino, Coral; Martín Pedrosa, Fernando; García Cabezón, Ana Cristina; Rodríguez Méndez, María Luz. Título: Analysis of red wines using an electronic tongue and infrared spectroscopy. Correlations with phenolic content and color parameters. Publicación: LWT - Food Science and Technology, 2020, vol. 118, 108785. DOI: 10.1016/j.lwt.2019.108785

Resumen: The objective of this work was to develop a methodology based on multiparametric methods (FTIR and a voltammetric e-tongue based on SPE) to evaluate simultaneously fourteen parameters related to the phenolic content of red wines. Eight types of Spanish red wines, elaborated with different grape varieties from different regions and with different aging, were analyzed with both systems.

<http://uvadoc.uva.es/handle/10324/48932> Gutiérrez Martín, Alfonso; Pinedo González, Ruth; Gil, Cristina. Título: Competencias TIC y mediáticas del profesorado. Convergencia hacia un modelo



integrado AMI-TIC = ICT and Media competencies of teachers. Convergence towards an integrated MIL-ICT model. Publicación: Comunicar: Revista Científica de Comunicación y Educación, Vol. XXX, Nº 70, 2022. DOI:<https://doi.org/10.3916/C70-2022-02>

Resumen: El objetivo de este trabajo es analizar las percepciones de los docentes sobre sus competencias mediáticas y el uso de las TIC, así como la importancia que asignan a dichas competencias en la formación del profesorado. Se ha elaborado un cuestionario a partir de las propuestas de la UNESCO en TIC (Tecnologías de la Información y Comunicación) y AMI (Alfabetización Mediática e Informativa) que ha sido respondido por 402 docentes y futuros docentes.

<http://uvadoc.uva.es/handle/10324/49034> Vega García-Luengos, Germán. Título: Las comedias de Lope de Vega: confirmaciones de autoría y nuevas atribuciones desde la estilometría (I). Publicación: Talía. Revista de estudios teatrales, 3 (2021), pp. 91-108. DOI:<https://dx.doi.org/10.5209/tret.74625>

Resumen: Las comedias conservadas atribuidas a Lope de Vega de las que tenemos noticia sobrepasan el medio millar y han sido todas ellas objeto de análisis estilométricos dentro del proyecto ETSO. Se ha utilizado para ello el paquete Stylo basado en R, desarrollado por Eder, Rybicki y Kestemont. En esta ocasión se ofrecen los resultados de las 342 obras con mayores garantías de ser auténticas, según la clasificación de la Cronología de Morley y Bruerton.

<http://uvadoc.uva.es/handle/10324/49171> Chejara, Pankaj; Prieto, Luis P.; Ruiz Calleja, Adolfo; Rodríguez Triana, María Jesús; Kant Shankar, Shashij; Kasepalu, Reet. Título: EFAR-MMLA: An evaluation framework to assess and report generalizability of machine learning models in MMLA. Publicación: Sensors, 2021, vol. 21, n. 8, 2863. DOI: 10.3390/s21082863

Resumen: Multimodal Learning Analytics (MMLA) researchers are progressively employing machine learning (ML) techniques to develop predictive models to improve learning and teaching practices. These predictive models are often evaluated for their generalizability using methods from the ML domain, which do not take into account MMLA's educational nature. [...] To overcome these issues, this paper proposes an evaluation framework to assess and report the generalizability of ML models in MMLA (EFAR-MMLA).

<http://uvadoc.uva.es/handle/10324/48911> Gómez Costilla, Patricia; García Prieto, María del Carmen; Somarriba Arechavala, María Noelia. Título: Aging and gender health gap: A multilevel analysis for 17 European countries. Publicación: Social Indicators Research, 2021, 19 p. DOI:10.1007/s11205-020-02595-2

Resumen: The European population is aging and their declining capacity makes older Europeans more dependent on the availability of care. Male and female health needs at older ages are different, yet there are contradictory results on the study of gender inequalities in health among the older European population.

<http://uvadoc.uva.es/handle/10324/49172> Ruiz Calleja, Adolfo; Vega Gorgojo, Guillermo; Bote Lorenzo, Miguel Luis; Asensio Pérez, Juan Ignacio; Dimitriadis Damoulis, Ioannis; Gómez Sánchez, Eduardo. Título: Supporting contextualized learning with linked open data. Publicación: Journal of Web Semantics, 2021, vol. 70, 100657. DOI: 10.1016/j.websem.2021.100657



Resumen: This paper proposes a template-based approach to semi-automatically create contextualized learning tasks out of several sources from the Web of Data. The contextualization of learning tasks opens the possibility of bridging formal learning that happens in a classroom, and informal learning that happens in other physical spaces, such as squares or historical buildings.

<http://uvadoc.uva.es/handle/10324/49170> Tabuenca, Bernardo; Serrano Iglesias, Sergio; Carruana Martín, Adrián; Villa Torrano, Cristina; Dimitriadis Damoulis, Ioannis; Asensio Pérez, Juan Ignacio; Alario Hoyos, Carlos; Gómez Sánchez, Eduardo; Bote Lorenzo, Miguel Luis; Martínez Monés, Alejandra; Delgado Kloos, Carlos. Título: Affordances and core functions of smart learning environments: A systematic literature review. Publicación: IEEE Transactions on Learning Technologies, 2021, vol. 14, n. 2. p. 129 – 145. DOI:10.1109/TLT.2021.3067946

Resumen: Smart learning environments (SLEs) have gained considerable momentum in the last 20 years. The term SLE has emerged to encompass a set of recent trends in the field of educational technology, heavily influenced by the growing impact of technologies, such as cloud services, mobile devices, and interconnected objects.

<http://uvadoc.uva.es/handle/10324/49214> Bernardo García, Victoria; Martín de León, Judit; Pinto Sanz, Javier; Schade, Ulrich; Rodríguez Pérez, Miguel Ángel. Título: On the interaction of infrared radiation and nanocellular polymers: First experimental determination of the extinction coefficient. Publicación: Colloids and Surfaces A: Physicochemical and Engineering Aspects, 2020, vol. 600, 124937. DOI: 10.1016/j.colsurfa.2020.124937

Resumen: Among the various mechanisms playing a role in the heat transfer through nanocellular polymers, the radiation contribution remains the most unknown, since there is a lack of experimental data about how infrared light interacts with such structures. In this work, we present the first experimental measurements of the transmittance in the infrared region of nanocellular polymers.

<http://uvadoc.uva.es/handle/10324/49210> Muñoz Pascual, Santiago; Sáiz Arroyo, Cristina; Vananroye, Anja; Moldenaers, Paula; Rodríguez Pérez, Miguel Ángel. Título: Effect of the elastomer viscosity on the morphology and impact behavior of injection molded foams based on blends of polypropylene and polyolefin elastomers. Publicación: Journal of Applied Polymer Science, 2021, vol. 138, n. 2, 50425 DOI:10.1002/app.50425

Resumen: The impact resistance of injection-molded polypropylene (PP) parts is severely reduced when they are foamed. It is necessary to implement strategies, such as elastomer toughening, to increase the impact behavior of foamed parts. However, the knowledge on the effect of elastomer addition on the morphology, cellular structure, and impact of injection-molded cellular parts is very limited. In this work, foamed parts based on blends of PP and polyolefin elastomers have been produced and characterized.

<http://uvadoc.uva.es/handle/10324/49299> García Cabezón, Ana Cristina; Salvo Comino, Coral; García Hernández, Celia; Rodríguez Méndez, María Luz; Martín Pedrosa, Fernando. Título: Nanocomposites of conductive polymers and nanoparticles deposited on porous material as a strategy to improve its corrosion resistance. Publicación: Surface and Coatings Technology, 2020, vol. 403, 126395. DOI: 10.1016/j.surfcoat.2020.126395

Resumen: A strategy for the corrosion protection of porous materials using conductive polymers and nanocomposites of polymers and nanoparticle is presented. Several conductive polymers, various



dopants and different electropolymerization conditions are studied to select the films with the highest corrosion resistance on porous and non-porous materials.

<http://uvadoc.uva.es/handle/10324/49298> García Cabezón, Ana Cristina; García Hernández, Celia; Rodríguez Méndez, María Luz; Martín Pedrosa, Fernando. Título: A new strategy for corrosion protection of porous stainless steel using polypyrrole films. Publicación: Journal of Materials Science & Technology, 2020, vol. 37. p. 85-95. DOI: 10.1016/j.jmst.2019.05.071

Resumen: In this work, a method to improve the protection against corrosion of porous sintered stainless steel is presented. It is based on the electrodeposition of polypyrrole (PPy) layers doped with a large size counterion such as dodecylbenzenesulphonic acid (DBSA), a conducting polymer with high corrosion resistance and good biocompatibility. The efficacy of PPy coating depends on the adequate adhesion between the metal substrate and the coating layer.

<http://uvadoc.uva.es/handle/10324/49304> Jimeno Bulnes, Natalia, Díez Revuelta, Álvaro. Título: Entrevista a un profesional sanitario: estudio piloto de una actividad de contacto asistencial temprano en el grado en Medicina durante la pandemia por COVID-19. Publicación: FEM, 2021, 24, p. 199-209. DOI:10.33588/fem.244.1136

Resumen: El Espacio Europeo de Educación Superior fomenta el diseño y la aplicación de metodologías docentes innovadoras, que en las ciencias de la salud pueden contribuir al conocimiento y el contacto temprano con la práctica asistencial, y a la humanización de la medicina. El objetivo es presentar las características y los resultados obtenidos en la actividad grupal 'Entrevista a un profesional sanitario.

<http://uvadoc.uva.es/handle/10324/49281> Pena López, Claudia. Título: Distintos avatares para una figuración unívoca y positiva de la mujer en las comedias de Marivaux. Publicación: Tonos digital: Revista de estudios filológicos, N°. 41, 2021, 15 pp.

Resumen: Este trabajo pretende analizar la figura de la mujer en la obra de un Marivaux al que consideramos como feminista en una época en que los logros de las preciosistas parecen cuestionados por una nueva corriente contraria al progreso de la mujer.

<http://uvadoc.uva.es/handle/10324/49308> Castro Sastre, María Ángeles; García Cabezón, Ana Cristina; Fernández Abia, Ana Isabel; Martín Pedrosa, Fernando; Barreiro, Joaquín. Título: Comparative study on microstructure and corrosion resistance of Al-Si alloy cast from sand mold and binder jetting mold. Publicación: Metals, 2021, vol. 11, n. 9. 1421. DOI:10.3390/met11091421

Resumen: This investigation is focused on the corrosion evaluation of an as-cast Al-Si alloy, obtained by two different casting methods: traditional sand casting and three-printing casting, using a binder jetted mold. The experimental results are discussed in terms of chemical composition, microstructure, hardness, and corrosion behavior of two different casting parts.

<http://uvadoc.uva.es/handle/10324/49359> Waters, Jessica E.; Berger, Georg; Peel, Andrew J.; García Rodríguez, Raúl; Bond, Andrew D.; Wright, Dominic S. Título: Uncovering the hidden landscape of Tris(4-pyridyl) ligands: Topological complexity derived from the bridgehead. Publicación: Chemistry - A European Journal, 2021, vol. 27, n. 47. p. 12036-12040. DOI: 10.1002/chem.202101291



Resumen: Supramolecular main group chemistry is a developing field which parallels the conventional domain of metallo-organic chemistry. Little explored building blocks in this area are main group metal-based ligands which have the appropriate donor symmetry to build desired molecular or extended arrangements.

<http://uvadoc.uva.es/handle/10324/49353> Plajer, Alex J.; Crusius, Daniel; Jethwa, Rajesh B.; García Romero, Álvaro; Bond, Andrew D.; García Rodríguez, Raúl; Wright, Dominic S. Título: Coordination chemistry of the bench-stable tris-2-pyridyl pnictogen ligands [E(6-Me-2-py)₃] (E = As, Sb). Publicación: Dalton Transactions, 2021, vol. 50, n. 7. p. 2393-2402. DOI: 10.1039/D0DT03732J

Resumen: Tripodal ligands with main group bridghead units are well established in coordination chemistry and single-site organometallic catalysis [...] In the current study we investigate the coordination chemistry of the ligand family E(6-Me-2-py)₃ (E = As, Sb) and of the As(V) ligand O [double bond, length as m-dash]As(6-Me-2-py)₃. The air- and moisture-stability of all of these main group ligands makes them especially attractive in future catalytic applications.

<http://uvadoc.uva.es/handle/10324/49419> Landesman, Jean-Pierre; Fouchier, Marc; Pargon, Erwine; Gérard, Solène; Rochat, Névine; Levallois, Christophe; Mokhtari, Merwan; Pagnod-Rossiaux, Philippe; Laruelle, Francois; Petit-Etienne, Camille; Bettiati, Mauro; Jiménez López, Juan Ignacio; Cassidy, Daniel T. Título: Mechanical stress in InP and GaAs ridges formed by reactive ion etching. Publicación: Journal of Applied Physics, 2020, vol. 128, n. 22. 12 p. DOI: 10.1063/5.0032838

Resumen: The mechanical deformation induced by reactive ion etching (RIE) of rectangular ridge waveguides in GaAs and InP has been investigated by photoluminescence and cathodoluminescence techniques. Several trends were identified and are discussed.

<http://uvadoc.uva.es/handle/10324/49401> Guada, Miguel; Moretón Fernández, Ángel; Rodríguez Conde, Sofía; Sánchez, Luis Alberto; Martínez, Mario; González Rebollo, Miguel Ángel; Jiménez López, Juan Ignacio; Pérez, Leonardo; Parra, Vicente; Martínez Sacristán, Óscar. Título: Daylight luminescence system for silicon solar panels based on a bias switching method. Publicación: Energy Science and Engineering, 2020, vol. 8, n. 11. p. 3839-3853. DOI:10.1002/ese3.781

Resumen: Among the many characterization techniques for solar panel testing, two, electroluminescence (EL) and photoluminescence (PL), can provide useful visual information about the presence of different types of cell defects. EL is performed outdoors by night in commercial solar plants due to the very weak luminescence emission compared to sunlight.

<http://uvadoc.uva.es/handle/10324/49399> Landesman, Jean-Pierre; Goktas, Nebile Isik; LaPierre, Ray R.; Ghanad-Tavakoli, Shahram; Pargon, Erwine; Petit-Etienne, Camille; Levallois, Christophe; Jiménez López, Juan Ignacio; Dadgostar, Shabnam. Título: Effect of the Plasma Etching on InAsP/InP Quantum Well Structures Measured through Low Temperature Micro-Photoluminescence and Cathodoluminescence. Publicación: ECS Transactions, 2020, vol. 97, n. 2. p. 43-55. DOI: 10.1149/09702.0043ecs

Resumen: Photoluminescence and cathodoluminescence spectral imaging were performed across rectangular stripes etched in samples with InAs_xP_{1-x} quantum wells of constant thickness and variable composition grown on InP. In particular, the effects of different etching chemistries



(CH₄/H₂/Ar and Cl₂/CH₄/Ar) were investigated. The results discussed deal with modifications of the luminescence line shapes (which differ with etching process) and with the intensity variation of the emissions associated with the quantum wells across the stripes

<http://uvadoc.uva.es/handle/10324/49414> Hinojosa, Manuel; García, Iván; Dadgostar, Shabnam; Algorta del Valle, Carlos. Título: Point-Defects Assisted Zn-Diffusion in AlGaInP/GaInP Systems During the MOVPE Growth of Inverted Multijunction Solar Cells. Publicación: IEEE Journal of Photovoltaics, 2021, vol 11, n. 2. p. 429-436. DOI: 10.1109/JPHOTOV.2020.3043849

Resumen: We investigate the dynamics of Zn diffusion in MOVPE-grown AlGaInP/GaInP systems by the comparison of different structures that emulate the back-surface field (BSF) and base layers of a GaInP subcell integrated into an inverted multijunction solar cell structure.

<http://uvadoc.uva.es/handle/10324/49429> Pura Ruiz, José Luis; Balci, Osman; Baron, Thierry; Jiménez López, Juan Ignacio. Título: 3D field confinement in the near-field interaction between graphene and Si/SiGe axially heterostructured NWs. Publicación: Applied Physics Letters, 2021, vol. 118, n. 21. 5 p. DOI:10.1063/5.0050049

Resumen: Interest in the integration of graphene and semiconductor nanowires (NWs) increased dramatically during the last two decades along with the overwhelming development of graphene technology. The possibility of combining the countless properties of graphene with the singular optical behavior of semiconductor NWs leads the way to the design of unique photonic nanodevices. In this work, the optical response of Si/SiGe axially heterostructured NWs deposited over a graphene monolayer is investigated.

<http://uvadoc.uva.es/handle/10324/49424> Dadgostar, Shabnam; Souto Bartolomé, Jorge Manuel; Jiménez López, Juan Ignacio. Título: CL as a tool for device characterisation: the case of laser diode degradation. Publicación: Nano Express, 2021, vol. 2, n. 1. 17 p. DOI: 10.1088/2632-959X/abdc3d

Resumen: Cathodoluminescence is a powerful technique for the characterization of semiconductors. Due to its high spatial resolution, it is emerging as a suitable method for the study of semiconductor devices. The reduced dimension of the devices and the multilayer structure of their active parts demand experimental means with high lateral resolution and probe depth tunability for characterising the different layers forming the device structure.

<http://uvadoc.uva.es/handle/10324/49453> Landesman, Jean-Pierre; Goktas, Nebile Isik; LaPierre, Ray R.; Levallois, Christophe; Ghanad-Tavakoli, Shahram; Pargon, Erwine; Petit-Etienne, Camille; Jiménez López, Juan Ignacio. Título: Low temperature micro-photoluminescence spectroscopy of microstructures with InAsP/InP strained quantum wells. Publicación: Journal of Physics D: Applied Physics, 2021, vol. 54, n. 44. 9 p. DOI: 10.1088/1361-6463/ac1a33

Resumen: Ridge microstructures were prepared by reactive ion etching (RIE) of a series of stacked InAsP_{1-x} quantum wells (QWs) with step graded compositions grown on InP by molecular beam epitaxy. These microstructures were characterized by low temperature micro-photoluminescence. The photoluminescence (PL) emission associated with each of the QWs was clearly identified and a model for their line shape was implemented.

<http://uvadoc.uva.es/handle/10324/49449> Fernández Rodríguez, L.; Levy, D.; Zayat, Marcos; Jiménez López, Juan Ignacio; Mather, Glenn Christopher; Durán, Alicia S.; Pascual, María Jesús.



Título: Processing and luminescence of Eu/Dy-doped Sr₂MgSi₂O₇ glass-ceramics. Publicación: Journal of the European Ceramic Society, 2021, vol. 41, n. 1. p. 811-822. DOI: 10.1016/j.jeurceramsoc.2020.08.038

Resumen: Glass-ceramics based on the Eu/Dy-doped Sr₂MgSi₂O₇ phosphor have been obtained from sintering and crystallization of glass powders. Electric and gas furnaces were employed for glass melting. The doped parent glasses show red emission under excitation of UV light whereas the corresponding glass-ceramics show blue emission. The microstructure of the glass-ceramics and the crystals responsible for the blue emission were observed by scanning electron microscopy-cathodoluminescence.

<http://uvadoc.uva.es/handle/10324/49461> García, Iván; Barrutia, Laura; Dadgostar, Shabnam; Hinojosa, Manuel; Johnson, Andrew; Rey Stolle, Ignacio. Título: Thinned GaInP/GaInAs/Ge solar cells grown with reduced cracking on Ge|Si virtual substrates. Publicación: Solar Energy Materials and Solar Cells, 2021, vol. 225, 111034. DOI: 10.1016/j.solmat.2021.111034

Resumen: Reducing the formation of cracks during growth of GaInP/GaInAs/Ge 3-junction solar cells on Ge|Si virtual substrates has been attempted by thinning the structure, namely the Ge bottom cell and the GaInAs middle cell. The theoretical analysis performed using realistic device parameters indicates that the GaInAs middle cell can be drastically thinned to 1000 nm while increasing its In content to 8% with an efficiency loss in the 3-junction cell below 3%.

<http://uvadoc.uva.es/handle/10324/49452> Dadgostar, Shabnam; Belloso Casuso, Cantia; Martínez Sacristán, Óscar; Hinojosa, Manuel; García, Iván; Jiménez López, Juan Ignacio. Título: A cathodoluminescence study on the diffusion length in AlGaInP/InGaP/AlInP solar cell heterostructures. Publicación: Journal of Electronic Materials, 2020, vol. 49. p. 5184-5189. DOI:10.1007/s11664-020-08176-w

Resumen: The diffusion length of minority carriers in a p-doped InGaP layer is derived from the cathodoluminescence (CL) intensity profiles. Two procedures are used. First, the CL profile is recorded along a line crossing the intersection between a thin metallic mask and the semiconductor; a second approach consists of the measurement of the intensity profile around an intentional scratch on the surface of the sample.

<http://uvadoc.uva.es/handle/10324/49454> Montedoro, Vincenzo; Torres Pérez, Alfredo; Dadgostar, Shabnam; Jiménez López, Juan Ignacio; Bosi, Matteo; Parisini, Antonella; Fornari, Roberto. Título: Cathodoluminescence of undoped and Si-doped ε-Ga₂O₃ films. Publicación: Materials Science and Engineering: B, 2021, vol. 264. 114918. DOI: 10.1016/j.mseb.2020.114918

Resumen: Cathodoluminescence (CL) investigations are performed on nominally undoped and Si-doped ε-Ga₂O₃ samples grown by metal-organic vapor phase epitaxy on (0001)-Al₂O₃ substrates, using different carrier gases.

<http://uvadoc.uva.es/handle/10324/49451> Moretón, A.; Jiménez, M. M.; Dadgostar, Shabnam; Martínez Sacristán, Óscar; González Rebollo, Miguel Ángel; Jiménez López, Juan Ignacio. Título: Electrical activity of crystal defects in multicrystalline Si. Publicación: Journal of Electronic Materials, 2020, vol. 49. p. 5091-5096. DOI:10.1007/s11664-020-08119-5



Resumen: Upgraded metallurgical-grade silicon solar cells with different ranges of efficiencies have been characterized by light-beam-induced current (LBIC) measurements. The interaction between grain boundaries and metallic impurities is studied for cells fabricated on wafers from different solidification heights of the ingot.

<http://uvadoc.uva.es/handle/10324/49457> Pura Ruiz, José Luis; Souto Bartolomé, Jorge Manuel; Jiménez López, Juan Ignacio. Título: Effect of thermal lensing and the micrometric degraded regions on the catastrophic optical damage process of high-power laser diodes. Publicación: Optics Letters, 2020, vol. 45, n. 7. p. 1667-1670. DOI:10.1364/OL.389385

Resumen: Catastrophic optical damage (COD) is one of the processes limiting the lifetime of high-power laser diodes. The understanding of this degradation phenomenon is critical to improve the laser power and lifetime for practical applications. In this Letter, we analyze the defect propagation inside the cavity of quantum well (QW) high-power laser diodes presenting COD. For this, we studied the effect of highly localized thermal gradients and degraded regions on the laser field distribution.

<http://uvadoc.uva.es/handle/10324/49520> Náthia-Neves, Grazielle; Alonso Sánchez, Gloria Esther. Título: Valorization of sunflower by-product using microwave-assisted extraction to obtain a rich protein flour: Recovery of chlorogenic acid, phenolic content and antioxidant capacity. Publicación: Food and Bioproducts Processing 125 (2021) 57-67. DOI: <https://doi.org/10.1016/j.fbp.2020.10.008>

Resumen: The sunflower cake, which is a by-product from sunflower oil refining, is a rich source of chlorogenic acid (CGA), a phenolic compound that must be removed from this by-product before its use for human consumption. This work studied the extraction of CGA from sun-flower by-product using microwave-assisted extraction (MAE) and it was divided into two steps.

<http://uvadoc.uva.es/handle/10324/49357> García Romero, Álvaro; Martín Álvarez, José Miguel; Colebatch, Annie L.; Plajer, Alex J.; Miguel San José, Daniel; Álvarez González, Celedonio Manuel; García Rodríguez, Raúl. Título: Synthesis of tris(3-pyridyl) aluminate ligand and its unexpected stability against hydrolysis: revealing cooperativity effects in heterobimetallic pyridyl aluminates. Publicación: Dalton Transactions, 2021, vol. 50, n. 37. p. 13059-13065. DOI: 10.1039/D1DT02351A

Resumen: We report the elusive metallic anion $[\text{EtAl}(\text{3-py})_3]^-$ (3-py = 3-pyridyl) (1), the first member of the anionic tris(3-pyridyl) family. Unexpectedly, the lithium complex 1Li shows substantial protic stability against water and alcohols, unlike related tris(2-pyridyl) aluminate analogues. This stability appears to be related to the inability of the $[\text{EtAl}(\text{3-py})_3]^-$ anion to chelate Li^+ , which precludes a decomposition pathway involving Li/Al cooperativity.

<http://uvadoc.uva.es/handle/10324/49307> Pallas Álvarez, Lorena; Díez Revuelta, Álvaro; Jambrina, Juan José; Vargas, Martín. Título: Patología dual en personas sin hogar en el Área de Salud de Avilés. Publicación: Revista española de drogodependencias, Sep 2021, 46(3), 60-70

Resumen: El objetivo principal del presente estudio es estimar la prevalencia de trastornos mentales graves y de uso de sustancias en personas en la situación de estar sin hogar. El trabajo se realizó a partir de los datos obtenidos de una muestra representativa de personas sin hogar en Avilés (Asturias) (n=100) utilizando la Entrevista Neuropsiquiátrica Internacional (M.I.N.I.). Los resultados de nuestro estudio ponen de manifiesto una estrecha relación entre el uso de sustancias y el sinhogarismo.



<http://uvadoc.uva.es/handle/10324/48954> Gómez Vega, Mafalda; Herrero Prieto, Luis César; Valdivia López, Marcos. Título: Clustering and country destination performance at a global scale: Determining factors of tourism competitiveness. Publicación: Tourism Economics. DOI: 10.1177/13548166211007598

Resumen: Our aim is to evaluate the efficiency of tourist destinations at a global scale, considering 140 countries and drawing on World Economic Forum 2019 data.

<http://uvadoc.uva.es/handle/10324/48989> López Jimeno, María del Amor. Título: Alicia de Battenberg. The Crown (Netflix) y la historia contemporánea de Grecia = Alice of Battenberg. The Crown (Netflix) and Greek Contemporary History. Publicación: Metakinema, 2021, 25, p. 33-51

Resumen: Las series históricas y los biopics ayudan a dar a conocer al gran público hechos históricos del pasado o la biografía de algún personaje interesante. La serie de televisión The Crown (Netflix) combina ambos aspectos y puede servir de punto de partida para profundizar en múltiples contenidos. Analizaremos un episodio de la tercera temporada para hacer un recorrido por la compleja historia de Grecia en el siglo XX y la apasionante biografía de la Princesa Alicia de Battenberg, madre del Príncipe Felipe, Duque de Edimburgo, uno de los protagonistas de la serie, nacido Príncipe de Grecia y Dinamarca.

<http://uvadoc.uva.es/handle/10324/48968> Barrio Tellado, María José del; Herrero Prieto, Luis César. Título: Evaluating a Cultural Policy in the Dance Sector. Does Efficiency Always Mean Achieving Goals?. Publicación: The Journal of Arts Management, Law, and Society, 2021, vol. 51, n. 4 p. 207-223. DOI:10.1080/10632921.2021.1890656

Resumen: This work aims to evaluate cultural policies, specifically in the dance sector, an area which has received scant attention in economic literature so far. Data Envelopment Analysis (DEA) is applied to evaluate public programme performance and the stakeholders involved therein.

<http://uvadoc.uva.es/handle/10324/48975> Gómez Zapata, Jonathan Daniel; Herrero Prieto, Luis César; Rodríguez Prado, Beatriz. Título: Does music soothe the soul? Evaluating the impact of a music education programme in Medellín, Colombia. Publicación: Journal of Cultural Economics, 2020, n. 45, p. 63-104. DOI:10.1007/s10824-020-09387-z

Resumen: Numerous studies have borne out the effects of cultural and music education on individuals' wellbeing, considering music as a mainly systematic practice or skill or as established educational supply. However, few studies assess the impact of music programmes designed to achieve specific goals, and where music is considered as a tool for social change. As a case study, we take the Medellín Music School Network (Colombia), whose education programme for music initiation has been running for 23 years.

<http://uvadoc.uva.es/handle/10324/49173> Rodríguez Triana, María Jesús; Prieto, Luis P.; Dimitriadis Damoulis, Ioannis; De Jong, Ton; Gillet, Denis. Título: ADA for IBL: Lessons Learned in Aligning Learning Design and Analytics for Inquiry-Based Learning Orchestration. Publicación: Journal of Learning Analytics, 2021, vol. 8, n. 2. p. 22-50. DOI:10.18608/jla.2021.7357

Resumen: Orchestrating technology-enhanced learning is a difficult task, especially in demanding pedagogical approaches like inquiry-based learning (IBL). To foster effective teacher adoption, both



the complexity of designing IBL activities and the uncertainty about the student learning path during enactment need to be addressed.

<http://uvadoc.uva.es/handle/10324/49309> Martín Arranz, E.; Fernández Rodríguez, B.; Carrascal Joral, E.; Díez Revuelta, Álvaro; Domínguez Martín, Cristina. Título: Impacto emocional durante el confinamiento por COVID-19 en menores de hospital de día y en sus padres/cuidadores. Publicación: Revista de Psiquiatría Infanto-Juvenil, 2021, 38 (1), p. 11-19. DOI: 10.31766/revpsij.v38n1a3

Resumen: La pandemia por COVID-19 puede incrementar la sintomatología de depresión, ansiedad y estrés en la población. Objetivo: evaluar el impacto emocional en los menores que acuden a Hospital de día y a sus padres/cuidadores. Material y método: se evalúa el impacto emocional en los menores y sus padres/cuidadores tras el confinamiento por el COVID-19.

<http://uvadoc.uva.es/handle/10324/49165> García Cabezón, Ana Cristina; Rodríguez Méndez, María Luz; Amigó Borrás, Vicente; Bayón, Raquel; Rodríguez Cabello, José Carlos; Ibáñez Fonseca, Arturo; Martín Pedrosa, Fernando. Título: Application of plasma Electrolytic oxidation coating on powder metallurgy Ti-6Al-4V for dental implants. Publicación: Metals, 2020, vol. 10, n. 9, 1167. DOI:10.3390/met10091167

Resumen: Ti-6Al-4V alloy obtained by powder metallurgy (PM) is a good candidate biomaterial in the manufacture of dental implants but its inherent porosity makes it have worse corrosion behavior than conventionally obtained alloys. In order to improve the corrosion and biological properties, surface modification technologies could be used. The plasma electrolytic oxidation (PEO) process is a novelty process successfully used in case of conventional titanium alloys. The present work investigates the effect of PEO treatment on PM Ti-6Al-4V alloy using two electrolytes.

<http://uvadoc.uva.es/handle/10324/49163> Gobbi Teixeira, Guilherme; Guimarães Dias, Luís; Salvo Comino, Coral; García Hernández, Celia; Rodríguez Méndez, María Luz; Martín Pedrosa, Fernando. Título: Analysis of phenolic content in grape seeds and skins by means of a bio-electronic tongue. Publicación: Sensors, 2020, vol. 20, n. 15, 4176 DOI:10.3390/s20154176

Resumen: A bio-electronic tongue has been developed to evaluate the phenolic content of grape residues (seeds and skins) in a fast and easy way with industrial use in mind. A voltammetric electronic tongue has been designed based on carbon resin electrodes modified with tyrosinase combined with electron mediators. The presence of the phenoloxidase promotes the selectivity and specificity towards phenols. The results of multivariate analysis allowed discriminating seeds and skins according to their polyphenolic content.

<http://uvadoc.uva.es/handle/10324/49156> Salvo Comino, Coral; Martín Pedrosa, Fernando; García Cabezón, Ana Cristina; Rodríguez Méndez, María Luz. Título: Silver nanowires as electron transfer mediators in electrochemical catechol biosensors. Publicación: Sensors, 2021, vol. 21, n. 3, 899. DOI:10.3390/s21030899

Resumen: The integration of nanomaterials as electron mediators in electrochemical biosensors is taking on an essential role. Due to their high surface-to-volume ratio and high conductivity, metallic nanowires are an interesting option. In this paper, silver nanowires (AgNWs) were exploited to design a novel catechol electrochemical biosensor, and the benefits of increasing the aspect ratio of the electron mediator (nanowires vs. nanoparticles) were analyzed.



<http://uvadoc.uva.es/handle/10324/49029> Villalba de Pando, Francisco; Albéniz Jiménez, Ana Carmen. Título: Non-chelate-assisted palladium-catalyzed aerobic oxidative heck reaction of fluorobenzenes and other arenes: When does the C–H activation need help?. Publicación: *Advanced Synthesis & Catalysis*, 2021, vol. 363, p. 1-11. DOI: 10.1002/adsc.202100677

Resumen: The pyridone fragment in the ligand [2, 2'-bipyridin]-6(1H)-one (bipy-6-OH) enables the oxidative Heck reaction of simple arenes with oxygen as the sole oxidant and no redox mediator. Arenes with either electron-donating or electron-withdrawing groups can be functionalized in this way. Experimental data on the reaction with toluene as the model arene shows that the C–H activation step is turnover limiting and that the ligand structure is crucial to facilitate the reaction, which supports the involvement of the pyridone fragment in the C–H activation step.

<http://uvadoc.uva.es/handle/10324/49254> García Cabezón, Ana Cristina; García Hernández, Celia; Rodríguez Méndez, María Luz; Herranz, Gemma; Martín Pedrosa, Fernando. Título: Role of carbon and nitrogen in the improvement of corrosion resistance of new powder metallurgy Co-Cr-Mo alloys. Publicación: *Corrosion reviews*, 2020. DOI:10.1515/corrrev-2019-0109

Resumen: Microstructural changes that result in relevant improvements in mechanical properties and electrochemical behavior can be induced by the use of different sintering conditions of ASTM F75 Cobalt alloys during their processing through powder metallurgy technique.

<http://uvadoc.uva.es/handle/10324/49166> Martín de León, Judit; Bernardo García, Victoria; Rodríguez Pérez, Miguel Ángel. Título: Two-stage depressurization in gas dissolution foaming: The production of nanocellular materials free of defects. Publicación: *Macromolecular Materials and Engineering*, 2020, vol. 305, n. 9, 2000283. DOI:10.1002/mame.202000283

Resumen: Nanocellular polymethylmethacrylate (PMMA) is produced through a newly proposed method, a two-stage depressurization in the gas dissolution foaming process. This method modifies the depressurization step and allows controlling the pressure during cell growth, avoiding this way, the appearance of micrometric defects in the produced cellular materials.

<http://uvadoc.uva.es/handle/10324/49158> García Cabezón, Ana Cristina; Rodríguez Méndez, María Luz; Amigó Borrás, Vicente; Bayón, R; Salvo Comino, Coral; García Hernández, Celia; Martín Pedrosa, Fernando. Título: Improvements in tribological and anticorrosion performance of porous Ti-6Al-4V via PEO coating. Publicación: *Friction*, 2021, vol. 9, n. 5, p. 1303-1318. DOI: 10.1007/s40544-020-0480-2

Resumen: Medical implants manufactured using biomaterial Ti-6Al-4V exhibit some disadvantages. Its higher elastic modulus than that of natural bone can cause stress shielding problems. This can be avoided using Ti-6Al-4V with pores in the implant structure. However, poor corrosion and tribocorrosion behaviors are yielded because of the large area exposed to the medium. To mitigate both issues, coating technologies can be applied.

<http://uvadoc.uva.es/handle/10324/49001> Tristán Vega, Antonio; París Bandrés, Guillem; Luis García, Rodrigo de; Aja Fernández, Santiago. Título: Accurate free-water estimation in white matter from fast diffusion MRI acquisitions using the spherical means technique. Publicación: *Magnetic Resonance in Medicine*, 2021, vol 00, p.1-8. DOI:10.1002/mrm.28997



Resumen: To accurately estimate the partial volume fraction of free water in the white matter from diffusion MRI acquisitions not demanding strong sensitizing gradients and/or large collections of different b-values.

<http://uvadoc.uva.es/handle/10324/49162> Apetrei, Constantin; Rodríguez Méndez, María Luz; Badea, Mihaela; Cristea, Cecilia. Título: Editorial: electrochemical sensors and biosensors in medical and pharmaceutical bioanalysis. Publicación: *Frontiers in Bioengineering and Biotechnology*, 2020, vol. 8. DOI:10.3389/fbioe.2020.00533

Resumen: This Research Topic collects different contributions in the emerging field of bioanalysis, highlighting the most relevant advances reported in the literature as well as some original research studies in medical and pharmaceutical bioanalysis.

<http://uvadoc.uva.es/handle/10324/49131> Cuadra Rodríguez, Daniel; Barroso Solares, Suset; Pinto Sanz, Javier. Título: Advanced nanocellular foams: Perspectives on the current knowledge and challenges. Publicación: *Nanomaterials*, 2021, vol. 11, n. 3, 621. DOI: 10.3390/nano11030621

Resumen: Nanocellular polymers (i.e., cellular polymers with cells and walls in the nanometric range) were first produced in the early 2000s, with the works of Yokoyama et al. Being the main precedents in this field, producing nanocellular structures by using supercritical carbon dioxide. However, it was not until a decade later that this research field started to grow significantly, attracting several international research groups in the quest to obtain cellular polymers with cells in the nanocellular range.

<http://uvadoc.uva.es/handle/10324/49160> Pérez González, C; Salvo Comino, Coral; Martín Pedrosa, Fernando; Guimarães Dias, Luís; Rodríguez Pérez, Miguel Ángel; García Cabezón, Ana Cristina; Rodríguez Méndez, María Luz. Título: Analysis of milk using a portable potentiometric electronic tongue based on five polymeric membrane sensors. Publicación: *Frontiers in Chemistry*, 2021, vol. 9. DOI:10.3389/fchem.2021.706460

Resumen: A portable potentiometric electronic tongue (PE-tongue) was developed and applied to evaluate the quality of milk with different fat content (skimmed, semi-skimmed, and whole) and with different nutritional content (classic, calcium-enriched, lactose-free, folic acid-enriched, and enriched in sterols of vegetal origin).

<http://uvadoc.uva.es/handle/10324/49209> Cimavilla Román, Paula; Pérez Tamarit, Saúl; Santiago Calvo, Mercedes; Rodríguez Pérez, Miguel Ángel. Título: Influence of silica aerogel particles on the foaming process and cellular structure of rigid polyurethane foams. Publicación: *European Polymer Journal*, 2020, vol. 135, 109884. DOI: 10.1016/j.eurpolymj.2020.109884

Resumen: Water blown rigid polyurethane (RPU) composite foams were produced using different concentrations of nanoporous silica aerogel micrometric powder (0.5, 1 and 3 wt%). The effect of these particles on the foaming kinetics was analysed from a physical and chemical viewpoint.

<http://uvadoc.uva.es/handle/10324/48894> Tejero González, Ana; De Freitas Barros Galvão, Víctor M.; Zarzuelo Sánchez, Andrés Manuel; San José Alonso, Julio Francisco. Título: Energy use optimization in ventilation of operating rooms during inactivity periods. Publicación: *Building Research & Information*, 2020, vol. 29, n.3, p.308-324. DOI:10.1080/09613218.2020.1817723



Resumen: Hospitals are highly energy demanding buildings, where simple actuations can involve large savings. However, energy efficiency actions must comply with the high safety standards. Operating rooms demand continuous ventilation despite the short activity periods. Setback during non-occupation of the operating rooms can reduce ventilation loads but must not hinder indoor overpressure to avoid infiltrations.