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Abdelali A, Nezli I, Kechiched R, Attalah S, Benhamida S and Pang Z (2020), "*Geothermometry and geochemistry of groundwater in the Continental Intercalaire aquifer, southeastern Algeria: Insights from cations, silica and SO4–H2O isotope geothermometers*", Applied Geochemistry. Vol. 113 Elsevier Ltd.
[Abstract] [BibTeX] [DOI] [URL]

Abstract: Characterization of geochemistry and geothermometry of the groundwater from the Continental Intercalaire (CI) aquifer, one of the largest aquifers in the world, stretching over one million km2 surface area shared between Algeria, Tunisia and Libya, was conducted in southeastern Algeria nearby the border with Tunisia. Thirty-two water samples were collected from boreholes to analyze the physicochemical parameters and stable isotopes (δ18O(H2O), δ18O(SO4), δ 34S(SO4)) and determine the origin of water mineralization of the CI aquifer. Water temperature was assessed using several geothermometers, such as cations, silica and SO4–H2O stable isotopes. The CI aquifer displayed a discharge temperature varying from 45 to 65.1 °C due to water circulation at deeper depths ranging from 1000 to 2200 m. The Results show that CI water contains high total dissolved solids (TDS) and neutral to slightly alkaline pH. The most frequent water types were Na–Cl–SO4 and Ca–SO4 indicating the geological formation nature of CI aquifer which is mainly composed of evaporites. The application of Na–K and Na–K–Ca geothermometers yielded unreliable temperatures. However, Na–Li geothermometer resulted in relatively plausible temperatures ranging from 74.69 to 147.83 °C. Quartz and CaSO4–H2O isotope geothermometer are the most suitable methods for temperature estimation, due to their attainment of equilibrium resulting in temperatures ranging from 62 to 93 °C, and validation by the multiple mineral equilibrium approach. The present study demonstrated a successful application of CaSO4–H2O isotope geothermometer in a low enthalpy (<100 °C) geothermal system. The results corroborate previous findings on the same CI aquifer at the Tunisian side and on carbonate-evaporite geothermal reservoirs. Furthermore, geothermal potential of the CI aquifer has been highlighted suggesting its use as a source of renewable energy which could be applied in heating greenhouses and/or generating electricity. © 2019 Elsevier Ltd

Abdelkader A and Abdelkader G (2020), "*Two-dimensional jet emerging from the channel Against a vertical obstacle*", Proceedings of the 2020 International Conference on Mathematics and Information Technology, ICMIT 2020. , pp. 109-112. Institute of Electrical and Electronics Engineers Inc..
[Abstract] [BibTeX] [DOI] [URL]

Abstract: In this paper, we study a problem of potential bidimensional flow of a inviscid, and incompressible fluid, emerging from the channel against a vertical obstacle, this problem is characterized by the nonlinear condition given by the Bernoulli equation, on the free surface which is of unknown shape. We adopt a method of conformal transformations that reduces the discretization problem only on the free surface. We found the results for different Webre number values. © 2020 IEEE.

Abbassi A, Bouchala T, Abdou A and Abdelhadi B (2020), *"Eddy Current Characterization of 3D Crack by Analyzing Probe Signal and Using a Fast Algorithm Search"*, Russian Journal of Nondestructive Testing. Vol. 56(5), pp. 426-434. Pleiades Publishing.
[Abstract] [BibTeX] [DOI] [URL]

Abstract: Abstract: The study of 3D eddy current non destructive testing system for cracks characterization using finite element method requires a great amount of computing time and memory space. In this article, we have validated the developed model and then determined directly the crack length by analyzing the complete signal. Afterwards, we have extracted from the complete sensor sweep signal the maximal amplitude that we have exploited to estimate the crack depth. © 2020, Pleiades Publishing, Ltd.

Abderrahmene D, Wassima L, Randa M, Hamida H, Omar G, Fatma A, Wiam B, Salima C, Keltoum G, Salim M, Mohammed B and Sofiane G (2020), *"Potential of Zygophyllum album L. to control Tuta absoluta in Southeastern Algeria"*, Organic Agriculture. Vol. 10(2), pp. 221-227. Springer.
[Abstract] [BibTeX] [DOI] [URL]

Abstract: On the valorization of spontaneous plants to contribute to organic agriculture, a biological study was undertaken by using the aqueous extract of Zygophyllum album (family of Zygophyllaceae), collected from Southeastern Algeria. Three levels of treatment (100%, 50%, and 25%) diluted from the extracted solution of this plant were tested on larvae (IN = 30) and adults (IN = 30) of tomato borer Tuta absoluta. This work reveals larval mortality rates of 7.5 ± 0.58% after 24 h, 12.50 ± 2.38% after 48 h, 30 ± 4.08% after 72 h, 40 ± 4.08% after 96 h, and 42.5 ± 6.45% after 120 h, although, with 50% of the crude extract, values of 20 ± 5.77%, 40 ± 4.08%, 50 ± 4.08%, 65 ± 5.77%, and 70 ± 4.58% were recorded at the same test durations, respectively. When a 25% dose of this solution was used, a mortality rate of 35 ± 8.16% was noted after 24 h and exceeds double (77.5 ± 8.66%) in 120 h. These data show that the toxicity of Z. album aqueous extract against T. absoluta increases with time and from the highest dose to the smallest one. Females of T. absoluta lay only 10 ± 3.54 to 19 ± 3.61 eggs/leaflet on treated tomato leaves, but a double amount was recorded on the control (37.25 ± 13.15 eggs/leaflet). This observation shows a repulsive effect of Z. album against T. absoluta females. © 2019, Springer Nature B.V.

Addoun N, Boual Z, Delattre C, Ursu A, Desbrières J, Le Cerf D, Gardarin C, Hentati F, El-Hadj M, Michaud P and Pierre G (2020), *"Structural features and rheological behavior of a water-soluble polysaccharide extracted from the seeds of Plantago ciliata Desf."*, International Journal of Biological Macromolecules. Vol. 155, pp. 1333-1341. Elsevier B.V..
[Abstract] [BibTeX] [DOI] [URL]

Abstract: A water-soluble polysaccharide (PSPC) was extracted from the seeds of Plantago ciliata Desf., a spontaneous Algerian Saharan plant by a hot aqueous extraction then purified by successive ethanolic precipitations. The final extraction yield for PSPC was close to 18.6% (w/v). PSPC was then investigated regarding its global composition, structural features and rheological properties. PSPC is a neutral arabinoxylan, composed of a β-(1,3)/β-(1,4)-D-xylan backbone with side chains of Xylp, and Araf residues attached in O-2 and O-3 positions. The macromolecular characteristics of PSPC in water was determined by SEC/MALLS, with a high molecular weight (Mw) of 700 kDa, a low polydispersity index (PDI) of 1.47 and an intrinsic viscosity [η] close to 157 mL/g. PSPC showed a pseudoplastic behavior in semi-dilute media and the critical overlay concentration (C*) was estimated around 0.32–0.37% (w/v). This current research has supplied original structural information on a new arabinoxylan which could be particularly useful as a novel source of soluble fiber belonging to psyllium.

Akriche A, Bezzerrouk M, Naceur R, Kharroubi B and Bousmaha M (2020), *"A Critical Study of Phase Stability and Electronic, Magnetic, and Elastic Properties in the Inverse Heusler Cr2MnSi Alloy: a First-Principles Calculations"*, Journal of Superconductivity and Novel Magnetism. Springer.
[Abstract] [BibTeX] [DOI] [URL]

Abstract: Ab initio calculations were systematically investigated for nonmagnetic (NM), ferromagnetic (FM), and antiferromagnetic (AFM) states of new full-Heusler alloy Cr2MnSi in Hg2CuTi and Cu2MnAl-type structures. The calculations are based on the density functional theory, with the full potential linear muffin-tin orbital (FP-LMTO) method. The results show that the ferromagnetic Hg2CuTi prototype structure is the most stable. The optimized lattice parameter is found to be 5.643 Å, with the total magnetic moment 0.30 μB. The electronic band structure calculations revealed that Cr2MnSi exhibits a metallic ferromagnet behavior. Using the Mehl method, we have also calculated the elastic constants and their related parameters such as Poisson's ratio, Young modulus, Zener anisotropy, shear modulus, Kleinman parameter ξ, Lamé constants (λ, μ), Cauchy pressure Pc, microhardness parameter, and the melting temperature Tm. Our calculation validates the conditions of mechanical stability in the cubic crystal. The estimation of the Curie temperature shows that the Cr2MnSi compound is a good candidate for the spintronic application.

Ali Khoudja S, Chellat S, Hacini M and Semiani A (2020), *"Petrography and authigenic chlorite in the Siegenian reservoir rocks, Berkine Basin, eastern Algerian Sahara"*, Arabian Journal of Geosciences. Vol. 13(16) Springer.
[Abstract] [BibTeX] [DOI] [URL]

Abstract: In Berkine Basin, the Siegenian stage is constituted by clayey sandstones and it contains several reservoir levels especially in the perimeter of Zemlet El Arbi, where the sandstone levels can reach 30 m of thickness. The Siegenian reservoir shows a tidal deposit environment, it is located at depths greater than 3200 m, its average thickness is 200 m in the south and it decreases to 30 m because it is strongly affected by Hercynian orogeny mainly in the northwest of the studied area. Petrographic and X-ray diffraction studies indicate the presence of authigenic chlorite, which is the most important cement in Siegenian sandstones. Chlorite appears in different forms: grain coating, pore lining, pore filling and rarely in the form of oolite. It often has a great impact on petrophysical reservoir qualities by inhibiting authigenic quartz overgrowth in porous space and preserving porosity. Other diagenetic phenomena observed are mechanical compaction, alteration and dissolution of feldspars and biotite, precipitation of clay minerals (smectite, berthierine, chlorite, kaolinite and illite) and precipitation of secondary silica, carbonates, pyrite and haematite.

Amara A, Etemad S and Rezapour S (2020), *"Topological degree theory and Caputo–Hadamard*

***fractional boundary value problems"*, Advances in Difference Equations. Vol. 2020(1) Springer.**
[Abstract] [BibTeX] [DOI] [URL]

Abstract: We study two hybrid and non-hybrid fractional boundary value problems via the Caputo–Hadamard type derivatives. We seek the existence criteria for these two problems separately. By utilizing the generalized Dhage's theorem, we derive desired results for an integral structure of solutions for the hybrid problems. Also by considering the special case as a non-hybrid boundary value problem (BVP), we establish other results based on the existing tools in the topological degree theory. In the end of the article, we examine our theoretical results by presenting some numerical examples to show the applicability of the analytical findings. © 2020, The Author(s).

Amara A (2020), *"Existence results for hybrid fractional differential equations with three-point boundary conditions"*, AIMS Mathematics. Vol. 5(2), pp. 1074-1088. American Institute of Mathematical Sciences.
[Abstract] [BibTeX] [DOI] [URL]

Abstract: We investigate the existence and uniqueness of solutions of problems of three point boundary values of hybrid fractional differential equations with a fractional derivative of Caputo of order $\alpha \in [1, 2]$, the results are obtained drawing on the standard fixed point theorems. The results are illustrated by a some examples. © 2020 the Author(s).

Ameur-Zaimeche O, Zeddouri A, Heddam S and Kechiched R (2020), *"Lithofacies prediction in non-cored wells from the Sif Fatima oil field (Berkine basin, southern Algeria): A comparative study of multilayer perceptron neural network and cluster analysis-based approaches"*, Journal of African Earth Sciences. Vol. 166 Elsevier Ltd.
[Abstract] [BibTeX] [DOI] [URL]

Abstract: The purpose of this study is to investigate the possibility of applying multilayer perceptron neural network (MLPNN) and cluster analysis approaches for rebuilding non-cored lithofacies. These techniques are carried out to predict missing lithofacies intervals from the reservoir of Trias Argileux Grèseux Inférieur in the Sif Fatima oil field (Berkine basin- Southern Algeria). The performances of the suggested models were evaluated using root mean square error (RMSE), mean absolute error (MAE) and correlation coefficient (R). The MLPNN model was developed using four input variables of nuclear well logging data including: Gamma-Ray, Density, Potassium and Thorium. MLPNN model shows lower RMSE and MAE with 0.39 and 0.23 respectively, together with strong R values (training = 0.87; validation = 0.78; test = 0.92). The cluster analysis model displays lower performances (R = 0.68, RMSE = 1.04 and MAE = 0.54). This quantitative comparison between real and predicted electrofacies using the two methods indicates that MLPNN model is more recommended in rebuilding non-cored lithofacies than cluster analysis. The MLPNN model makes possible to estimate lithofacies in 333 m of non-cored lithofacies allowing an important economic benefit. © 2020 Elsevier Ltd

Amirat H, Lagraa N, Fournier-Viger P and Ouinten Y (2020), *"NextRoute: a lossless model for accurate mobility prediction"*, Journal of Ambient Intelligence and Humanized Computing. Vol. 11(7), pp. 2661-2681. Springer.
[Abstract] [BibTeX] [DOI] [URL]

Abstract: Mobility prediction of vehicles has become a key feature in mobility management in smart cities, mobile computing environments, intelligent transportation systems, vehicular networks, and location-based services. It has several important applications in traffic congestion forecasting, location-based routing protocol designs and targeting advertisements generation, etc. Mobility prediction (aka route prediction) consists of forecasting future routes to be traversed by a vehicle. Several models have been proposed for route prediction. These models are generally probabilistic models (e.g., Markov models) or data mining-based models (e.g., sequential rule-based models), and are trained with historical location data. Although these models were shown to perform well, one important drawback is that they are lossy. In other words, a large amount of information found in the location data is discarded by their training processes. Consequently, these models do not perform well for predicting routes where detailed information is required to perform accurate predictions. Besides, several prediction models assume the Markovian hypothesis that the next location of a user only depends on his/her current location and any previous movement of the user is ignored in prediction. This hypothesis has been employed, such as in Lian et al. (ACM Trans Intell Syst Technol 6:1–27, 2015. https://doi.org/10.1145/2629557), as a simplifying assumption because it allows building models having a small size. However, this assumption is often unrealistic and thus greatly decreases the accuracy of route prediction. Moreover, these models are noise sensitive as they do not tolerate the smallest deviation in location data principally prone to several disturbances and uncertainty issues. To address these limitations, this paper introduces a novel route prediction model named NextRoute. The proposed model is lossless as it compresses location data in a prediction tree without information loss, and it is designed to use all the relevant information contained in the training data to perform prediction. In contrast to some other proposals, NextRoute provides efficient noise tolerance strategy that loosened the similarity measure when matching the current trajectory of vehicle with historical data. An extensive experimental evaluation was conducted with real-world and synthetic datasets providing quite encouraging results. © 2019, Springer-Verlag GmbH Germany, part of Springer Nature.

Annou A, Berhab S, Chbara F and Messatfa T (2020), *"Compact CPW-Fed Ultrawideband Circular Shape-Slot Antenna"*, Lecture Notes in Networks and Systems. Vol. 102, pp. 305-312. Springer.
[Abstract] [BibTeX] [DOI] [URL]

Abstract: A compact CPW-fed ultra-wideband (UWB) circular–shape slot antenna is presented. The proposed antenna comprises a circular-shaped slot in the centre of the radiating surface. The antenna is fabricated onto an inexpensive FR4 substrate with an overall dimension of only 18 × 23 mm2. The suggested antenna is analyzed using full-wave electromagnetic solvers, CST Microwave Studio (MWS) and Ansoft HFSS, to validate the obtained simulated results. Moreover, a comprehensive parametric study has been applied to understand the effect of some parameters on the antenna's performance. The obtained results show that the proposed antenna achieves good impedance matching, constant gain and stable radiation patterns over the operating bandwidth of 3.1–10.6 GHz (109%) that covers the entire UWB. The stable radiation pattern with a maximum gain of 3.58 dBi and a directivity of 80%, making the proposed antenna very suitable for using in UWB applications. © 2020, Springer Nature Switzerland AG.

Attia A, Chaa M, Akhtar Z and Chahir Y (2020), *"Finger kunckcle patterns based person recognition via bank of multi-scale binarized statistical texture features"*, Evolving Systems. Springer.
[Abstract] [BibTeX] [DOI] [URL]

Abstract: This paper proposes a novel finger knuckle patterns (FKP) based biometric recognition system that utilizes multi-scale bank of binarized statistical image features (B-BSIF) due to their improved expressive power. The proposed system learns a set of convolution filters to form different BSIF feature representations. Later, the learnt filters are applied on each FKP traits to determine the top performing BSIF features and respective filters are used to create a bank of features named B-BSIF. In particular, the presented framework, in the first step, extracts the region of interest (ROI) from FKP images. In the second step, the B-BSIF coding method is applied on ROIs to obtain enhanced multi-scale BSIF features characterized by top performing convolution filters. The extracted feature histograms are concatenated in the third step to produce a large feature vector. Then, a dimensionality reduction procedure, based on principal component analysis and linear discriminant analysis techniques (PCA + LDA), is carried out to attain compact feature representation. Finally, nearest neighbor classifier based on the cosine Mahalanobis distance is used to ascertain the identity of the person. Experiments with the publicly available PolyU FKP dataset show that the presented framework outperforms previously-proposed methods and is also able to attain very high accuracy both in identification and verification modes. © 2018, Springer-Verlag GmbH Germany, part of Springer Nature.

Badjadi N (2020), *"Learner-centered english language teaching: Premises, practices, and prospects"*, IAFOR Journal of Education. Vol. 8(1), pp. 7-27. The International Academic Forum (IAFOR).
[Abstract] [BibTeX] [DOI] [URL]

Abstract: Although learner-centered education is claimed to have several learning gains, research suggests that teachers' attitudes and practices play a crucial role in promoting its prolific outcomes. This study examines the adaptation of learner-centered education and examines how it has been implemented in second language teaching by university teachers since launching an educational shift embodied in the learner-centered reform a decade ago. In so doing, a questionnaire was distributed to a random sample of 128 instructors. The data collected were analyzed through descriptive and inferential statistical analyses using the Statistical Package for Social Sciences SPSS 16.0 software. Meanwhile, interviews were analyzed qualitatively. The quantitative analysis of data provides a snapshot of instructors' attitudes towards Learner-centered education and the extent to which they implemented it in their courses. More importantly, the analysis of qualitative interview results outlines a "contextualized" framework that takes into account the conceptual nature of the global premises of Learner-centered education by linking them to teachers' perceptions and practices in a particular context. The findings provide insights into the dynamism of meeting college students' second language learning needs. The study further addresses the problems of designing teacher training that aims at promoting higher education second language learning in the Middle East and North Africa context. © 2020, The International Academic Forum (IAFOR). All rights reserved.

Ballah Z and Khelfaoui F (2020), *"Numerical modeling of the electrical properties plasma argon in a RF magnetron sputtering and with Einstein's relation of electron diffusivity"*, Journal of King Saud University - Science. Vol. 32(1), pp. 620-627. Elsevier B.V..
[Abstract] [BibTeX] [DOI] [URL]

Abstract: Numerical modeling of RF magnetron sputtering discharge of argon plasma properties, using a one-dimensional time-dependent fluid model in presence of the magnetic field, has been developed. The model is based on continuity equation and electron temperature equation coupled with Poisson's equation. The electron mobility depends on magnetic field and the electron diffusivity is assumed to be dependent of electron energy by Einstein's relation. The flux is calculated by Scharfetter and Gummel schemes. Numerical simulations were resolved by using the Finite Volume Method (FVM) and the Thomas algorithm. The obtained results for the electrical properties, electron and ion densities, electrical potential, electric field and electron temperature, are in good agreement with previous works. A parametric study varying the magnetic field intensity on the discharge properties is done. © 2018

Beddiaf R, Kherbouche Y, Abdouali R, Eddoud A, Ababsa L, Guezoul O, Souttou K and Sekour M (2020), *"The Infestation State and Reproduction Biology of Pomegranate Butterfly Virachola Livia (Lepidoptera: Lycaenidae) in Saharan Area of Algeria"*, International Journal of Fruit Science. Taylor and Francis Inc..
[Abstract] [BibTeX] [DOI] [URL]

Abstract: Pomegranate trees are susceptible to many pests. Marketing quality of pomegranate fruits is mainly affected by the pomegranate butterfly Virachola livia. This study aimed to determine some bio-ecological parameters of Virachola livia (Klug) and the evaluation of their damages on pomegranate (Punica granatum) in the region of Djanet (Southeastern of Algeria). The percentage of infestation was 78.7% according to the penetration holes. However, depending on the number of eggs, it was 69.3%. The number of penetration holes and eggs by fruit varied between 1 and 24 (7.8 ± 5.7) holes/fruit and 1 to 15 (4.2 ± 3) eggs/fruit, respectively. The pupae stages last from 5 to 8 days (6.9 ± 1.2 days). The females can live between 8 and 16 days (10.9 ± 2.5 days), whereas the longevity of males varied between 4 and 11 days (8.8 ± 2.9 days). © 2020, © 2020 Taylor & Francis.

Bekhouche S, Dornaika F, Benlamoudi A, Ouafi A and Taleb-Ahmed A (2020), *"A comparative study of human facial age estimation: handcrafted features vs. deep features"*, Multimedia Tools and Applications. Springer.
[Abstract] [BibTeX] [DOI] [URL]

Abstract: In recent times, the topic of human facial age estimation attracted much attention. This is due to its ability to improve biometrics systems. Recently, several applications that are based on the demographic attributes estimation have been developed. These include law enforcement, re-identification in videos, planed marketing, intelligent advertising, social media, and human-computer interaction. The main contributions of the paper are as follows. Firstly, it extends some handcrafted models that are based on the Pyramid Multi Level (PML) face representation. Secondly, it evaluates the performance of two different kinds of features that are handcrafted and deep features. It compares handcrafted and deep features in terms of accuracy and computational complexity. The proposed scheme of study includes the following three main steps: 1) face preprocessing; 2) feature extraction (two different kinds of features are studied: handcrafted and deep features); 3) feeding the obtained features to a linear regressor. In addition, we investigate the strengths and weaknesses of handcrafted and deep features when used in facial age estimation. Experiments are run on three public databases (FG-NET, PAL and FACES). These experiments show that both handcrafted and deep features are effective for facial age estimation. © 2020, Springer Science+Business Media, LLC, part of Springer Nature.

Belaid A, Filali A, Gama A, Bezza B, Arrif T and Bouakba M (2020), *"Design optimization of a solar tower power plant heliostat field by considering different heliostat shapes"*, International Journal of Energy

Research. John Wiley and Sons Ltd.
[**Abstract**] [**BibTeX**] [**DOI**] [**URL**]

Abstract: The present study focuses on the optimization of solar tower power plant heliostat field by considering different heliostat shapes including rectangular, square, pentagon, hexagon, heptagon, octagon, and circular heliostat shapes. The optimization is carried out using an in-house developed code-based MATLAB program. The developed in-house code is validated first on a well-known PS10 Solar Thermal Power plant having rectangular heliostats shape and the resulting yearly unweighted heliostat field efficiency of about 64.43% could be obtained. The optimized PS10 heliostat field using different heliostat shapes showed that the circular and octagon heliostat shapes provide better efficiency with minimum land area. The yearly efficiency is increased from 69.65% for the rectangular heliostat shape to 70.96% and 71% for the octagon and circular shapes, respectively. In addition, the calculated field area (land area) is reduced for the case of circular and octagon heliostat shapes with a gain of about 11.10% and 10.93% (about 42.0436 × 103 and 41.4036 × 103 m2), respectively, in comparison with the PS10 field area.

Belaid M, Cherif A, Vinn O and Naimi M (2020), ***"First record of trace fossils from the oxfordian argiles rouges de kheneg formation (Tiaret, northwestern Algeria)"*****, Geologia Croatica. Vol. 73(2), pp. 1-9. Croatian Geological Survey.**
[**Abstract**] [**BibTeX**] [**DOI**] [**URL**]

Abstract: Three main facies associations FA-3 to FA occur in the Oxfordian Argiles rouges de Kheneg Formation in northwestern Algeria. They correspond respectively to the deeper part of a mixed siliciclastic-carbonate shelf, upper shoreface and offshore transition-lower offshore. The trace fossil association of the Argiles rouges de Kheneg Formation contains fifteen ichnogenera and is moderately diverse for the Upper Jurassic. The formation contains diverse and abundant deep water or dominantly deep water trace fossils (i.e. Belorhaphe, Chondrites, Helminthopsis, Nereites, Megagrapton). They indicate that a part of the formation was deposited in offshore transition to lower offshore environments.

Belghitar E, Meftah M and Benbitour M (2020), ***"A model of angular momentum transport between a planet and accretion disk"*****, Journal of King Saud University - Science. Vol. 32(3), pp. 1856-1860. Elsevier B.V..**
[**Abstract**] [**BibTeX**] [**DOI**] [**URL**]

Abstract: This paper presents a simplified model of the viscous transport of angular momentum and sets up a simplified expression of the rate of specific angular momentum transfer from the planet to the disk. Thanks to Whittaker's functions, we have found an analytic solution for the disk surface density.

Belhouchet H, Benzagouta M, Dobbi A, Alquraishi A and Duplay J (2020), ***"A new empirical model for enhancing well log permeability prediction, using nonlinear regression method: Case study from Hassi-Berkine oil field reservoir – Algeria"*****, Journal of King Saud University - Engineering Sciences. King Saud University.**
[**Abstract**] [**BibTeX**] [**DOI**] [**URL**]

Abstract: The reservoir permeability (K) factor is the key parameter for reservoir characterization. This parameter is considered as a determinant reservoir quality index. Depending on the data required and procedure availability, permeability can be defined from several methods such as; well test interpretation, wireline formation tester, and core data. These approaches can also be in assumption with permeability prediction targeting the non-cored sections. According to a similar status, well logs records can be an interesting support tool in use to reach the planned objectives. Thus, this investigation consists of finding out a model able to estimate the well log permeability and adjusting the outcome to the core permeability results. In this led research, the applied approach to the core data, to start with, was aimed to determine the reservoir rock types (RRT) using the flow zone indicator (FZI) method. The obtained classification allows stating a permeability model for each rock type. In order to calculate permeability from well logs, FZI has been founded out. A multi-regression technique was used to analyze the relationship of FZI with respect to specific logs such as Gamma-ray (GR), Density Log (RHOB), and Sonic log (DT). An objective function has been designated to minimize the quadratic error between the observed normalized FZI coming from core data, and the normalized FZI calculated from well logs. This process is carried out to identify a mathematical correlation allowing the estimation of FZI from porosity logs, leading to permeability determination. As results, permeability from logs was supporting relatively permeability defined from cores. The final results can be an accurate and real test for associating the exactitude performance of logging data records in boreholes with respect to the overall reservoir characterization sections. Thus, the applied investigation can be a genuine and quick method for essentially a specific deduction regarding the non-cored reservoir sections, with reference to rock typing, permeability and probably further reservoir factors. © 2020 The Authors

Bellabidi M, Benaissa M, Bissati-Bouafia S, Harrat Z, Brahmi K and Kernif T (2020), *"Coxiella burnetii in camels (Camelus dromedarius) from Algeria: Seroprevalence, molecular characterization, and ticks (Acari: Ixodidae) vectors"*, Acta Tropica. Vol. 206 Elsevier B.V..
[Abstract] [BibTeX] [DOI] [URL]

Abstract: Q fever is a widespread zoonotic disease caused by Coxiella burnetii that most commonly infects not only a variety of mammals but also arthropods and in particularly ticks. The aim of this study was to detect C. burnetii infection in camels including ixodid ticks using serological and molecular assays. Between July 2018 to June 2019, blood samples from 184 male and female camels (Camelus dromedarius) were collected from 3 regions of South–East Algeria and serum samples were tested for antibodies against Coxiella burnetii using indirect enzyme-linked immunosorbent assay (ELISA) kit. The positive sera and a total of 60 ticks were tested by quantitative PCR (qPCR) for detection of C. burnetii with primers and probes specific to the transposon-like repetitive region (IS1111 gene). Positive samples were genotyped by amplification and sequencing of partial sequences based on the IS1111 gene. The seroprevalence of antibodies against C. burnetii was 75.5%. Statistical analysis pointed out three potential risk factors associated with Q fever infection: geographic location, age class and season. No positive DNA of camel blood sample was observed. However, five Hyalomma dromedarii, one H. impeltatum and one H. excavatum tick species were detected positive for Coxiella burnetii DNA by qPCR, with an overall prevalence rate of 11.66% (7/60). The revealed Algerian strains by phylogenetic and comparative analysis of the IS1111 nucleotide sequences were clustered with several pathogenic C. burnetii strains isolated from ticks, human, and cattle located in Tunisia, Greece and in some Mediterranean countries, respectively. The study results clearly indicate that camels and their ticks in

Algeria may play an important role as a reservoir for C. burnetii and can be considered as a significant source of Q fever transmission to other animal species and humans. © 2020 Elsevier B.V.

Belloufi A, Mezoudj M, Abdelkrim M, Rezgui I and Chiba E (2020), *"Experimental and predictive study by multi-output fuzzy model of electrical discharge machining performances"*, International Journal of Advanced Manufacturing Technology. Vol. 109(7-8), pp. 2065-2093. Springer.
[Abstract] [BibTeX] [DOI] [URL]

Abstract: The nature of electrical discharge machining makes it difficult to predict or even measure machining performance, which is why great attention has been paid to methodologies for measuring these performances. In this work, an experimental approach for measuring machining electrical discharge performance and geometric errors was presented. This can improve the authenticity of the parameters measured. A technique for identifying machining parameters using a multi-output system based on fuzzy logic has been proposed. The objective was to determine the influence of machining parameters on the machining performance and associated geometric errors. It is shown that the fuzzy model is capable of giving results providing a good correlation between the real and predicted values. The average error of the model was approximately 1.51% for material removal rate, 3.386% for tool wear rate, 2.924% for wear rate, 5.285% for surface roughness, 4.004% for radial overcut, 4.381% for circularity, and 2.937% for cylindricity. © 2020, Springer-Verlag London Ltd., part of Springer Nature.

Bendaoud B, Malek A, Loukarfi L and Maammeur H (2020), *"Conceptual study of photovoltaic power plant connected to the urban electrical network in northern Algeria"*, Energy Sources, Part A: Recovery, Utilization and Environmental Effects. Taylor and Francis Inc..
[Abstract] [BibTeX] [DOI] [URL]

Abstract: This present research paper aims at showing the active role of the building equipped with photovoltaic (PV) plant in terms of energy, economy, and ecology and its impact on the development of society. Since the installation of PV plants on buildings is a rarely used technology in Algeria, we intend to conceive 30 kWp medium power plants on pilot administrative buildings, which will be generalized to two other buildings of the same type, connected to urban electricity network so as to reduce the consumption of electricity which costs much money to the local authorities, the pilot site is located in the town of EL-ATTAF, in the northwestern of Algeria. It is Mediterranean climate with average radiation of 5.14 kWh/m2/day and average yearly temperature of 19.4°C. The study highlights the technical and financial feasibility of the system based on a simulation with Homer which estimates a load of 41610kWh/year, energy production of 47872 kWh/year, an optimal angle of inclination of 32°, saving of 454 m3/year of natural gas and avoiding huge quantities of pollutants (CO_2: 549 kg/year; SO_2: 9.6 g/year; NO_x: 0.5 kg/year). © 2020, © 2020 Taylor & Francis Group, LLC.

Benhaddya M, Halis Y and Hamdi-Aïssa B (2020), *"Assessment of heavy metals pollution in surface and groundwater systems in Oued Righ region (Algeria) using pollution indices and multivariate statistical techniques"*, African Journal of Aquatic Science. Vol. 45(3), pp. 269-284. NISC Pty Ltd.
[Abstract] [BibTeX] [DOI] [URL]

Abstract: Surface and groundwater samples of the Oued Righ region (south-eastern Algeria) were analysed for Cd, Cr, Cu, Mn, Ni, Pb and Zn by atomic absorption spectrophotometric method. An integrated approach of pollution evaluation indices and multivariate statistical methods (one-way ANOVA, principal component analysis [PCA] and cluster analysis [CA]) was employed to evaluate the intensity and sources of heavy metals of surface and groundwater systems in Oued Righ region, south-eastern Algeria. The heavy metal pollution index (HPI) of groundwater was below the critical index limit of 100, pointing to the fact that the groundwater is not polluted with respect to heavy metals. The heavy metal evaluation index (HEI) values ranged from 2.33 to 7.07, with a mean value of 4.03 for surface water, and from 0.95 to 2.77, with a mean value of 1.42 for the groundwater samples. The pollution indices show similar trends at the various sampling points. In addition, significant correlations are observed between them in surface water and groundwater samples. Furthermore, multivariate statistical analysis results demonstrated that natural and anthropogenic activities were major sources of water contamination in Oued Righ region. © 2020 NISC (Pty) Ltd.

Benkhelifa R, Biskri I, Laallam F and Aïmeur E (2020), *"User content categorisation model, a generic model that combines text mining and semantic models"*, International Journal of Computational Science and Engineering. Vol. 21(4), pp. 536-555. Inderscience Publishers.
[Abstract] [BibTeX] [DOI] [URL]

Abstract: Social networking websites are growing not only regarding the number of users but also in terms of the user-generated content. These data represent a valuable source of information for several applications, which require the meaning of that content associated with the personal data. However, the current structure of social networks does not allow extracting in a fast and straightforward way the hidden information sought by these applications. Major efforts have emerged from the semantic web community addressing this problem trying to represent the user as accurately as possible. They are not unable to give a sense to the user-generated content. For this, more sense-making needs to be done on the content, to enrich the user profile. In this paper, we introduce a generic model called user content categorisation (UCC). It incorporates the text mining approach into a semantic model to enrich the user profile by including information on user's posts classifications. Copyright © 2020 Inderscience Enterprises Ltd.

Benmir A, Korichi A, Bourouis A, Alreshoodi M and Al-Jobouri L (2020), *"Geoqoe-VANET: Qoe-aware geographic routing protocol for video streaming over vehicular AD-HOC networks"*, Computers. Vol. 9(2), pp. 1-20. MDPI AG.
[Abstract] [BibTeX] [DOI] [URL]

Abstract: Video streaming is one of the challenging issues in vehicular ad-hoc networks (VANETs) due to their highly dynamic topology and frequent connectivity disruptions. Recent developments in the routing protocol methods used in VANETs have contributed to improvements in the quality of experience (QoE) of the received video. One of these methods is the selection of the next-hop relay vehicle. In this paper, a QoE-aware geographic protocol for video streaming over VANETs is proposed. The selection process of the next relay vehicle is based on a correlated formula of QoE and quality of service (QoS) factors to enhance the users' QoE. The simulation results show that the proposed GeoQoE-Vanet outperforms both GPSR and GPSR-2P protocols in providing the best end-user QoE of video streaming service. © 2020 by the authors. Licensee MDPI, Basel, Switzerland.

Ben Nana Y, Khelfaoui F, Meftah M and Lari E (2020), *"A novel investigation in the electronic*

***broadening of spectral line profiles: Application to neutral magnesium in plasmas"*, Optik. Vol. 202 Elsevier GmbH.**
[Abstract] [BibTeX] [DOI] [URL]

Abstract: We present in this work a new simple estimation of Stark broadening of neutral atoms in plasmas. This is achieved by exploiting the S-matrix unitarity criteria to get a more precise estimation of the minimum of the impact parameter. The latter depends on a critical velocity of the free electrons. The result is: the collision operator is the sum of two contributions; the first is from electrons velocities less than the critical velocity (slow electrons), and the second is from electrons with velocities greater than the critical velocity (fast electrons). When the reduced critical velocity is very small (vc≪1), it is shown that the strong collision contribution can be expressed by Meijer G-functions. This corresponds to high energy ionization element in stellar plasmas. Then we applied our theoretical results to a plasma consisting of magnesium. We find a good agreement with experimental and with others theoretical results for a range of electron densities and temperatures. © 2019 Elsevier GmbH

Bennouna M, Kaddour S, Benaoumeur A and Nadir D (2020), *"Numerical investigation of the effect of constrained groove pressing process on the mechanical properties of polyamide PA66"*, Frattura ed Integrita Strutturale. Vol. 14(51), pp. 254-266. Gruppo Italiano Frattura.
[Abstract] [BibTeX] [DOI] [URL]

Abstract: This research is a numerical study of the effect of the constrained groove pressing (CGP) process and its impact on a thermoplastic polymer (polyamide PA 66). A simulation is performed using a finite element tool. The effect of the process conditions and the tool geometry on the mechanical properties is noted. The results are significant, the equivalent strain and Von Mises stress have been progressed accordingly to the number of cycles and the tool geometry. Concluding remarks on the alteration of the microstructure have been proclaimed at the end of this paper. © 2020, Gruppo Italiano Frattura. All rights reserved.

Benoumhani S, Dokkar B, Chennouf N and Drid M (2020), *"Bioethanol from olive residues: Prospects for a large scale production in the south of Algeria"*, International Journal of Psychosocial Rehabilitation. Vol. 24(4), pp. 494-506. Hampstead Psychological Associates.
[Abstract] [BibTeX] [DOI] [URL]

Abstract: In the south-east of Algeria, olive cultivation and olive oil production know a remarkable development. But, the waste resulting from the olive oil industry represents a supplementary charge. Many ways used to valorize these residues such as livestock nutrition, solid fuel and ethanol extraction. In this context, the development of olive production in the southern regions (Ouargla and Ghardaia provinces) is examined. The geographical information system “ArcGIS” software is used to evaluate the natural potential of solar radiation, precipitation, groundwater reserves and large plains in these areas. The solar radiation lies between 5.3 and 6.5 KWh/m2. By eliminating undesired zones which contain habitation and activity zones, sand and rocky soil, mountains, lacks and valleys, the available plain are evaluated at 15180 x103 hectares which present about 52 % of two provinces total area. The intersection of superposing maps (soil, precipitation and groundwater depth) gives the suitable areas for olive tree cultivation which can reach 5190 103 hectares. The obtained results show that the extension of olive cultivation is very promoting. In 2015, this agriculture covers 2471 hectares and releases 5500 x103 kg as residues. By using latest research rate of ethanol extraction, producing ethanol from olive residues is estimated at 1466 x103 liters. In 2040, the voluntary model shows that cultivated areas, olive residues and bio-ethanol production can reach 48800 hectares, 1086141 x103 kg and 22840 x103 liters respectively. For initial small scale bio-ethanol production, the cost evaluating shows that it remains relatively high (210.41 DZA (1.68 €) per litter. © 2020, Hampstead Psychological Associates. All rights reserved.

Bentebba F, Ghiaba Z, Saidi M and Bensasi C (2020), *"Effects of development and ripening stage on phytochemical compositions, antioxidant and antibacterial activities of date palm fruits"*, Asian Journal of Chemistry. Vol. 32(2), pp. 415-419. Asian Publication Corporation.
[Abstract] [BibTeX] [DOI] [URL]

Abstract: Edible parts of two dates cultivars (Deguel ahmar and Tanslit) at four maturation stages khellal, besser, rutab and tamr were analyzed for their phytochemical composition (total phenolic, total flavonoid and condensed tannins contents) as well as antioxidant and antibacterial activities. The antioxidant activity evaluated in vitro using scavenging assays of 1,1-diphenyl-2-picrylhydrazyl (DPPH) radical and 2,2′-azino-bis(3- ethylbenzothiazoline-6-sulfonic acid) (ABTS) radical and ferric reducing power. Antibacterial activity of extracts were evaluated in vitro by the agar disk diffusion method against five pathogenic bacterias trains: Bacillus subtilis ATCC 6633, Enterococcus ATCC 3315, Staphylococcus aureus ATCC 43300, Escherichia coli ATCC 25922 and Pseudomonas aeruginosa ATCC 7320. Results suggested that the content of these phytochemicals are very important at khellal stage and then decreased during maturation followed by a decrease in the antioxidant activity. © 2020 Chemical Publishing Co.. All rights reserved.

Berra A, Barkat S and Bouzidi M (2020), *"Virtual Flux Predictive Direct Power Control of Five-level T-type Multi-terminal VSC-HVDC System"*, Periodica polytechnica Electrical engineering and computer science. Vol. 64(2), pp. 133-143. Budapest University of Technology and Economics.
[Abstract] [BibTeX] [DOI] [URL]

Abstract: This paper proposes a Virtual Flux Predictive Direct Power Control (PDPC) for a five-level T-type multi-terminal Voltage Source Converter High Voltage Direct Current (VSC-HVDC) transmission system. The proposed PDPC scheme is based on the computation of the average voltage vector using a virtual flux predictive control algorithm, which allows the cancellation of active and reactive power tracking errors at each sampling period. The active and reactive power can be estimated based on the virtual flux vector that makes AC line voltage sensors not necessary. A constant converter switching frequency is achieved by employing a multilevel space vector modulation, which ensures the balance of the DC capacitor voltages of the five-level t-type converters as well. Simulation results validate the efficiency of the proposed control law, and they are compared with those given by a traditional direct power control. These results exhibit excellent transient responses during range of operating conditions. © 2020 Budapest University of Technology and Economics. All rights reserved.

Bissati S, Boudjenah S, Morisset C and Chenchouni H (2020), *"Does pre-culture in sugar-rich media affect carbohydrate content and post-thawing recovery rate of cryopreserved potato (Solanum phureja) shoot tips?"*, Journal of King Saud University - Science. Vol. 32(3), pp. 1917-1924. Elsevier B.V..
[Abstract] [BibTeX] [DOI] [URL]

Abstract: Shoot tips of Potato (Solanum phureja) were cryopreserved with the encapsulation-dehydration method, including: coating of shoot tips in calcium alginate beads, pre-culture in a solution containing 0.75 M of sugar (0.1 M of sucrose +0.65 M of another cryoprotectant sugar), and dehydration (for 4.5 h) on silica gel to reduce water content to 21–27%. Regrowth of shoot tips was assessed after freezing in liquid nitrogen. After cryopreservation, coated shoot tips were cultivated on a medium enriched with growth substances to measure concentrations of soluble carbohydrates. Maltose and trehalose ensured a better cryopreservation (88% and 91% of regrowth, respectively). Regrowth rates of potato shoot tips in the presence of polyols were very low and no recovery was obtained after freezing of shoot tips that were pre-cultivated in monosaccharides. Concentration of soluble carbohydrates increased in shoot tips pre-cultivated in sucrose, trehalose or glucose, especially when sucrose was applied as the cryoprotectant. The application of sucrose helped potato shoot-tips to acquire a certain tolerance to dehydration and cryofreezing. The analysis of soluble carbohydrates in potato shoot tips confirmed the accumulation of sugars during the pre-culture process, principally in the form of sucrose. The statistical analysis showed that soluble carbohydrate contents in shoot tips increased when total carbohydrates increased in the cultivation medium. The modelling approach indicated that the contents of soluble carbohydrates increased when pre-cultivation of potato shoot-tips was conducted in sucrose media compared to the control and other sugars. © 2020 The Author(s)

Boual Z, Pierre G, Kemassi A, Mosbah S, Benaoun F, Delattre C, Michaud P and Ould El Hadj M (2020), *"Chemical composition and biological activities of water-soluble polysaccharides from Commiphora myrrha (Nees) engl. gum"*, Analele Universitatii din Oradea, Fascicula Biologie. Vol. 27(1), pp. 50-55. Universitatea din Oradea.
[Abstract] [BibTeX] [URL]

Abstract: Myrrha, the gum resin exudate from Commiphora myrrha (Nees) Engl. tree, has been extensively used in traditional medicine for their beneficial effects. In this work, we isolated and purified water-soluble polysaccharide fraction (WSP), which afforded a yield of 42%. The chemical composition of WSP was mainly consisted of 83.33±2.63% carbohydrates, among them 79.25±1.06% are neutral monosaccharides and 13.4± 2.18% proteins, with traces of polyphenols (3.82%): The majority components of monosaccharides were galactose (45%) and arabinose (44%), with low levels of xylose (6%), and mannose (5%): In order to evaluate the immunostimulatory effect of WSP, phagocytic activity of opsonized human leucocytes against opportunist pathogen yeast, Candida albicans, was assessed. WSP could significantly ($p < 0.05$) enhance phagocytic capacity at the dose of 150 µg/ml, which showed a phagocytic activity of 29%. Moreover, the antihyperglycemic activity of extract was determined by α-Dglucosidase inhibitory activity, in vitro. WSP displays a promising inhibitory activity with an IC50 value of 8.30±0.12 mg/mL. The results of this work provide new knowledge in the field of chemical composition and biological activities of polysaccharides of Commiphora myrrha gum and might play an important role in activating phagocytosis leucocytes cells, thus having contribution to antidiabetic activity. © 2020 Universitatea din Oradea.

Bouchala T, Aouf A, Abdelhadi B and Benoudjit A (2020), *"Fictitious electric conductivity modelling of eddy current evaluation of magnetic materials"*, Nondestructive Testing and Evaluation. Vol. 35(1), pp. 19-28. Taylor and Francis Ltd..
[Abstract] [BibTeX] [DOI] [URL]

Abstract: This paper presents a new modeling approach of eddy current nondestructive evaluation systems containing magnetic materials. Originally, the proposed model is based on coupled circuits principle and the notion of equivalent current density. In order to make the model homogenous, we consider the current density as a state variable since this density is compatible with the representation of the magnetisation by equivalent currents. By introducing the fictitious electric conductivity approach, the sensor impedance is expressed according to magnetic tube or plate characteristics such as electric conductivity and magnetic permeability. An excellent concordance is achieved by comparing the calculated results to those of analytical ones. Regarding the mesh simplicity and the fast calculation, this method is very adapted for the resolution of the inverse problems for real time evaluation of the properties of magnetic materials. © 2019, © 2019 Informa UK Limited, trading as Taylor & Francis Group.

Bouzenna F-G, Meftah M and Difallah M (2020), *"Application of the Caputo–Fabrizio derivative without singular kernel to fractional Schrödinger equations"*, Pramana - Journal of Physics. Vol. 94(1) Springer.
[Abstract] [BibTeX] [DOI] [URL]

Abstract: In this work, we solve time, space and time-space fractional Schrödinger equations based on the non-singular Caputo–Fabrizio derivative definition for 1D infinite-potential well problem. To achieve this, we first work out the fractional differential equations defined in terms of Caputo–Fabrizio derivative. Then, the eigenvalues and the eigenfunctions of the three kinds of fractional Schrödinger equations are deduced. In contrast to Laskin's results which are based on Riesz derivative, both the obtained wave number and wave function are different from the standard ones. Moreover, the number of solutions is finite and dependent on the space derivative order. When the fractional orders of derivatives become integer numbers (one for time derivative or/and two for space), our findings collapse to the standard results. © 2020, Indian Academy of Sciences.

Bouznit Y and Henni A (2020), *"Enhanced photoelectrochemical performance of Al-doped ZnO thin films prepared by co-spray technique"*, Materials Science in Semiconductor Processing. Vol. 118 Elsevier Ltd.
[Abstract] [BibTeX] [DOI] [URL]

Abstract: Aluminium doped zinc oxide (AZO) films were achieved using co-spray method. Different techniques including UV–Visible (UV–Vis), X-ray diffraction (XRD), electrochemical impedance spectroscopy (EIS), Fourier transform infrared (FTIR) and photoelectrochemical (PEC) were used to characterize the obtained films. XRD indicated that all films exhibited single-phase ZnO hexagonal Würtzite structure. AZO films showed a transparency more than 80% in the visible region with direct optical band gap ranging between 3.24 and 3.28 eV. A broad absorption band due to the stretching vibration of Zn–O bond located at 410 cm−1 was observed for all samples. In the high frequency region, all EIS spectra have only one single half-circle and the diameter decreases in the presence of a specific amount of Al (2–4%). The values of the exponent αCPE from EIS results indicated that ZnO:Al films presented a good homogeneity and smoothness. PEC study indicated that the film generates maximum photocurrents up to 1.2 μA/cm2 for a doping level of 2%. © 2020 Elsevier Ltd

Chaib H, Mohammedi L, Benmebrouk L, Boukraa A, Daoudi B and Achouri A (2020), *"Effect of metal atom substitutions in Li based hydrides for hydrogen storage"*, International Journal of Hydrogen Energy. Elsevier Ltd.
[Abstract] [BibTeX] [DOI] [URL]

Abstract: By using density functional theory and the full-potential linearised augmented plane wave method, the effect of alkali (AM) and transition metal (TM) atom substitutions in Li based hydrides (Li_7XH_8 X (AM) = Na, K, Rb and X (TM) = Ti, V, Cr) was investigated, by studying their formation energies and electron properties, aiming at improving hydrogen storage performance. The calculated formation energy values indicate that there is a gradual degradation in stability due to alkali substitutions from Na to Rb and to transition metal substitutions from Ti to Cr in Li_7XH_8. The found degradations of stability in Li_7XH_8 were better compared concomitantly with corresponding gravimetric hydrogen storage variations. The less stable phase with least variation in gravimetric hydrogen storage was found to be Li_7CrH_8 among all alkali and transition metal atom substitutions. The density of states and the electron density support our observations.

Cherief M, Belaadi A, Bouakba M, Bourchak M and Meddour I (2020), *"Behaviour of lignocellulosic fibre-reinforced cellular core under low-velocity impact loading: Taguchi method"*, International Journal of Advanced Manufacturing Technology. Vol. 108(1-2), pp. 223-233. Springer.
[Abstract] [BibTeX] [DOI] [URL]

Abstract: This work describes the compression and failure behaviour of multi-honeycomb, re-entrant honeycomb and silicomb honeycomb structures of various core height (thickness: 10, 20 and 30 mm) reinforced with different natural fibres (flax, jute and sisal). Moulds used for manufacturing the composite cores were produced using 3D printing technique with polylactic acid (PLA). Experiments based on Taguchi design (L9) were conducted to determine the effect of each factor on the ultimate compression stress, deformation and absorption energy. The magnitude of compressive stress varied into a range of 25.32 to 36.38 MPa. Also, values of absorption of energy varied from 22.34 to 33.76 Kj/m3. It was found that thickness has a significant effect on compression properties and failure behaviour.

Cherrad N, Selloum D and Tingry S (2020), *"Modeling the control of the desorption rate of hydrogen released from the adsorption storage bed to supply a fuel cell"*, International Journal of Hydrogen Energy. Vol. 45(35), pp. 17605-17612. Elsevier Ltd.
[Abstract] [BibTeX] [DOI] [URL]

Abstract: The storage of hydrogen by adsorbent materials has been addressed by several researchers. These materials can serve as a reservoir of hydrogen at a very lower temperature, and the emptying operation to supply the fuel cell is simply heating the adsorbent bed. However, to maximize the ability of the adsorbent materials to meet the instantaneous hydrogen demand, adequate knowledge of desorbed hydrogen flow rate (DHR) must be investigated. The objective of this study is to model the control of the DHR induced by heating. The results show that the excess of hydrogen stored in the adsorbent material can be completely released at room temperature and the DHR increases with temperature. A solution is proposed for stabilizing the DHR, which consists in controlling the fuel cell supply section and, consequently, the power to be produced.

Cherraye R, Bouchekima B, Bechki D, Bouguettaia H and Khechekhouche A (2020), *"The effect of tilt angle on solar still productivity at different seasons in arid conditions (south Algeria)"*, International Journal of Ambient Energy. Taylor and Francis Ltd..
[Abstract] [BibTeX] [DOI] [URL]

Abstract: A survey was made to see how to improve the productivity of a solar distiller via different angles of inclination of the glass cover. For this, six identical solar stills with different angles of cover inclination were designed and installed side by side in the same weather conditions in the south of Algeria (Ouargla city). The angles studied in the experiment were (10°, 15°, 20°, 30°, 35° and 45°). The results obtained showed that the best inclination was 30° in the autumn and winter seasons with a production of 3.517 and 3.633 Kg.m−2, respectively; whereas the best inclination in the spring and summer seasons was 20° with a yield of 5.224 and 4.527 Kg.m−2, respectively. © 2020, © 2020 Informa UK Limited, trading as Taylor & Francis Group.

Dahou M, Slimani S, Habchi A, Djedid K and Rahmouni M (2020), *"Improvement of biogas production from lagoon station's sludge by chemical pretreatment [Amélioration de la production du biogaz à partir des boues de la station de lagunage par le prétraitement chimique]"*, UPB Scientific Bulletin, Series B: Chemistry and Materials Science. Vol. 82(2), pp. 131-144. Politechnica University of Bucharest.
[Abstract] [BibTeX] [URL]

Abstract: The present research focuses on the experimental study of the effect of chemical alkaline pretreatment by Ca(OH)2 on the anaerobic digestion. Different concentrations of Ca(OH)2 were tested on lagoon station's sludge of Adrar city (South-west of Algeria): 1, 2.5, 5.0 and 7.5 % (w/w). During 60 days of digestion, the results obtained, through the recorded the cumulative biogas volume, clearly indicate a positive effect of chemical pretreatment on the anaerobic digestion, where a 24.2 % increase in product biogas was obtained, when the concentration of Ca(OH)2 around 5%, which is considered the optimal concentration in our conditions. © 2020, Politechnica University of Bucharest. All rights reserved.

Derbal M, Toubakh H and Hayat S (2020), *"Effects of Drift Like Fault in Capacitor Banks on Self-Excited Induction Generator"*, 2019 International Conference on Control, Automation and Diagnosis, ICCAD 2019 - Proceedings. Institute of Electrical and Electronics Engineers Inc..
[Abstract] [BibTeX] [DOI] [URL]

Abstract: This paper presents the effect of excitation capacitors degradation on self-excited induction generators (SEIG) for stand-alone applications. This type of generators have many advantages, however they are very sensitive to variation of the exciting source Understanding the mechanism of degradation of capacitor banks and their effect on the production system is crucial step prior to their fault diagnosis performing. The capacitor bank degradation can be related to the chemical aging, electrical and thermal stress conditions.To demonstrate the degradation effect on the SEIG a degradation model is presented then the overall system is computed under different degradation scenarios, the dynamic flux model of the self-excited induction generator with magnetic saturation is presented and validated by experimental results, the results are analyzed and discussed to show the impact of degradation speed on the production system. © 2019 IEEE.

Derdous O, Tachi S and Bouguerra H (2020), *"Spatial distribution and evaluation of aridity indices in Northern Algeria"*, Arid Land Research and Management. Taylor and Francis Ltd..
[Abstract] [BibTeX] [DOI] [URL]

Abstract: The objective of the study presented herein is to provide an accurate climate classification on the basis of aridity in northern Algeria. The aridity indices used in this study were the De Martonne index

(I DM), the Emberger index (I Emberger), and the United Nations Environment Program index (I UNEP), generally admitted in the Mediterranean region. The data required for their calculation were taken from 37 meteorological stations, and processed in a Geographical Information System (GIS) environment to generate climate classification maps according to each index. Generally, the three indices revealed the prevalence of semi-arid conditions in the study area. Similar climate classifications were identified with the I UNEP and the I DM, while the I Emberger has identified larger arid extent. The obtained maps were then validated against the long-term soil moisture data extracted from a gridded global data set. The validation results indicated that the three indices gave very satisfactory results since they showed strong correlation coefficients with the soil moisture data. However, the I Emberger slightly outperformed the I UNEP and the I DM with coefficients of determination (R 2) of 0.80, 0.78, and 0.77, respectively. The seasonal investigation of aridity allowed to identify regions and seasons in which irrigation is needed for the main crops cultivated in the study area. © 2020, © 2020 Taylor & Francis Group, LLC.

Dida M, Boughali S, Bechki D and Bouguettaia H (2020), ***"Output power loss of crystalline silicon photovoltaic modules due to dust accumulation in Saharan environment"*****, Renewable and Sustainable Energy Reviews. Vol. 124 Elsevier Ltd.**
[Abstract] [BibTeX] [DOI] [URL]

Abstract: Photovoltaic (PV) module efficiency is much lower when operating in outdoors than under controlled laboratory conditions. Dust accumulation on the surface of PV modules results in lower performance and daily energy losses due to the decrease in glass cover transmittance. These losses in energy output are significant in large PV farms especially in arid and desert areas. In this research, the effect of dust accumulation on the performance of crystalline PV modules was investigated experimentally under outdoor conditions in a Saharan environment at the city of Ouargla, Southeast of Algeria. In addition, the power generation of a 30 MW grid-connected PV power plant installed in the same area before, during and after a sandstorm was evaluated. The results showed that approximately 4.36 g/m2 of dust accumulated on the PV module's surface after 8 weeks of outdoor exposure without cleaning. This caused a drop in PV energy production of 8.41%, 6.10% and 0.51% in maximum power output, short circuit current and open circuit voltage respectively in comparison to a cleaned PV module. Furthermore, deposited dust on the surface of the PV modules at this farm from this sandstorm led to a 32% reduction in generated energy (i.e. 5.18 MWh). © 2020 Elsevier Ltd

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Fares K, Amine K and Salah E (2020), ***"A robust blind color image watermarking based on Fourier transform domain"*****, Optik. Vol. 208 Elsevier GmbH.**
[Abstract] [BibTeX] [DOI] [URL]

Abstract: In this work, we propose a new substitution scheme for color images watermarking based on the Fourier transform. This scheme will be declined into two variants in which the image will be divided into three components R, G and B, and then to each component a transform is applied. The parity of the resulting coefficients will then be combined to hide the watermark in the medium frequency band. In our experiments several variants of the Fourier transform are used (Discrete Fourier Transform, a Fractional Fourier Transform as well as a Quaternion Discrete Fourier Transform). For each transform, both variants of our watermarking scheme are applied. The obtained results show that our approach offers good imperceptibility and generates watermarking images robust against various attacks with a high-quality watermark. © 2020 Elsevier GmbH