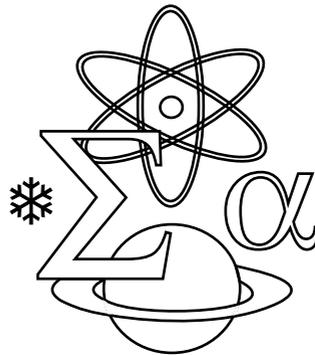


AJNTS

ALBANIAN JOURNAL OF NATURAL AND TECHNICAL SCIENCES



2011 (2)
XVII (31)

PUBLISHED BY ACADEMY OF SCIENCES OF ALBANIA

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**RECENT BREEDING RECORDS OF WHITE STORK
(*CICONIA CICONIA L.*) FROM VURGU FIELD,
SOUTHERN ALBANIA**

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ABSTRACT

A survey into the presence and breeding success of the White Stork (*Ciconia ciconia*) was carried out in the summers of 2010 and 2011 in Vurgu field, southern Albania. Four breeding sites with four breeding pairs were recorded, three of which were successful, with between three and five fledglings raised per nest. Nests were located on worship buildings such as church or monastery belfries in the villages of Çuka, Phoneice, Vrioni and Çaushti, with an additional nest built on top of an old poplar tree in Vrioni. Çuka village recorded the most number of grown fledglings (5). In 2010, in the same nest, three fledglings have been noted. In one case there was no breeding success due to human disturbance.

Keywords: White stork, breeding success, Vurgu Field, South Albania

PASSIVE SAMPLING DEVICE IDENTIFICATION OF PERSISTENT ORGANIC MICROPOLLUTANTS IN WATER AND SEDIMENTS OF LAKE SHKODRA

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ABSTRACT

Over the last decade, passive sampling systems for monitoring the bioavailable fraction of persistent organic pollutants (POPs) in water have been designed and the outcomes reported. Many non-polar organic substances, such as polycyclic aromatic hydrocarbons (PAHs) and polychlorinated biphenyls (PCBs), may adversely effect aquatic environments. As these hydrophobic contaminants are readily absorbed to bottom sediments, surface waters report concentrations in the low ng/L to pg/L levels. Consequently, regulatory monitoring and risk assessment of hydrophobic contaminants in surface waters is generally hampered by the inability to measure reliably these low (and sometimes fluctuating) concentrations. An *in situ* passive sampling device (bare silicone rod) was exposed in Shkodra Lake for 14 days for monitoring of the bioavailable fraction of persistent organic micro-pollutants. Laboratory exposures of 2 cm SRs were carried out in the laboratory. The silicone rods were directly analysed by means of thermodesorption (GC/MS). A number of PAHs in ng/SR (e.g. phenanthrene, anthracene, fluoranthene, pyrene) were identified in water and sediment.

Keywords: silicone rod, PAHs, POPs

RECALIBRATION AND COMPARISON OF DOSIMETRIC SYSTEM

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ABSTRACT

A GU-3 gamma irradiator, ionization chamber M 23331 (for absolute dosimetry), ECB dosimeters (as routine dosimeters) are used for calibration of dosimetric system. In addition, oscillotitrator OK-302/2 was used to measure dosimeter response. ECB dosimeters, irradiated with doses from 2.91 to 38.75 kGy, were used to plot calibration curve. The total uncertainty of our dosimetric system was $\pm 5\%$. As the maximal difference between the curves was 2%, two calibration curves (through zero and not through zero) were used for measuring the dose. Comparison between the results obtained in the Center of Nuclear Physics Laboratory (CNPH) in Tirana and in the IRASM Radiation Processing Centre Laboratory at the National Institute of Physics and Nuclear Engineering (IFIN HH), Bucharest, Romania was carried out, with good conformity between the results.

MARKET SURVEY ON LIFE SAFETY AND FLAME RETARDANCE OF TEXTILES IN ALBANIA

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ABSTRACT

In Albania, there has been constant development of the construction industry, and improved furniture materials. However, carpets, curtains, and other decorations are flammable often due to high polymer content. These materials convey heat to objects normally regarded as fireproof: building materials, concrete, iron, polystyrene foam, etc. Albania has made great efforts in establishing laws for fire safety of buildings. However, it is far from appropriate implementation of the legislation. Legislation in Western countries imposes the use of fire-retarding materials, helping reduce fire risk from ignition of textiles. Again, Albania is far from adoption of a series of international standards in this area. The present research selected and tested samples of curtain materials from the market. The results highlight the urgent need for appropriate legislation on textiles in Albania and its immediate implementation.

Keywords: flammability, textiles, ISO, EU legislation, survey, furnishings

RELATIONSHIP BETWEEN STRENGTH AND DIMENSION PROPERTIES OF WOOL FIBERS FROM ALBANIAN BREEDS OF SHEEP

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ABSTRACT

The present paper provides information on the mechanical properties of wool fibres from Albanian local breeds. Tensile strength is one of the five basic characteristics that help determine quality. Together with the strain on tensile loads (elongation) it impacts the quality and capability of processing (e.g. spinning) of the wool fibers. However, the finesses, length, crimp and colour are of great importance when it comes to quality grading of wool. This paper aims to look for correlations between the mechanical properties with other properties (e.g. dimensional) of wool from local breeds. The sampling, testing and reporting of results are in line with the statistical principles and standards of testing (ISO, IWTO, etc.). The investigations of assessment of textile materials were carried out in an accredited laboratory.

Keywords: tensile strength, elongation, strain, length, fineness, crimp, wool fibres, standards.

THEORETICAL ANALYSIS OF QoS ROUTING IN NETWORKS AND EVALUATION OF STARVATION WITH PACKETS IN DIFFERENT CLASSES

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ABSTRACT

In this paper a new approach that includes QoS routing architecture, implementable in the Dijkstra algorithm, is provided. Comparing Shortest Path Routing to QoS Routing is a tool to address performance of service. QoS routing eliminates starvation. The starvation between packets launched from source node with different priority is experimentally evaluated. Simulation with QoS routing is based on an ns-2 simulator.

Keywords: QoS routing architecture, Dijkstra algorithm, shortest path routing, starvation

GEOTECHNICAL STUDY AND ANCHOR PLEM DESIGN

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ABSTRACT

Computerised methods are used to evaluate offshore PLEM (Pipeline End Manifold) stability at a pipe and foundation in Vlora Bay. The original design, a steel-concrete structure, was replaced by four piles inserted in clamps placed at the edges of a steel frame. A geotechnical investigation provided information on the soil-pile interaction, a local and global spring model, impact of scour, soil stratigraphy and susceptibility to liquefaction. The type of foundation and forces acting on the PLEM were studied. A finite element model of the PLEM was determined, the joints tested and the structural elements were found to comply with international standards. Requirements for both environmental conditions and a sustainable structure were met.

Keywords: PLEM, geotechnical investigation, finite element model, load combination

FINDING LOCAL MINIMA IN THE ENERGY LANDSCAPE OF THE STABLE MARRIAGE PROBLEM

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ABSTRACT

The stable marriage is one version of the matching problem, a paradigm that finds applications in many different situations: matching interns with hospitals, university admissions, matching roommates, matching supply and demand in markets, etc. Traditionally in the computer sciences literature, where it originated, this problem is solved using the Gale–Shapley (GS) algorithm due to unique solutions, which always favour the proposing side. As there is a way to find all the stable matchings, a modification to the GS algorithm that allows a quick finding of a subset of solutions to the problem, in which one side does considerably better than in the traditional GS algorithm, while the other side does always worse, was introduced. Local minima in the energy landscape of the system represent the solutions of the stable marriage problem, which is similar to frustrated systems, and use at the same time of Monte Carlo annealing techniques helps find the best solution to the problem.

Keywords: stable marriage, Gale–Shapley algorithm, configuration energy

A COMPARATIVE EVALUATION OF ANALYTICAL METHODS FOR ^{90}Sr DETERMINATION

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ABSTRACT

A number of analytical methods for ^{90}Sr determination have been universally applied. Methods based on the solvent extraction of yttrium followed by the analysis of ^{90}Y which is assumed to be in secular equilibrium with ^{90}Sr , for rapid determination of ^{90}Sr are widely applied. Recently a novel selective extraction chromatographic material, consisting of supported crown ether, has been developed for the separation of strontium. In the area of radioactivity monitoring networks the “classical” method, based on the separation of strontium by a set of semi-selective precipitations, is still applicable. In the present paper, the three aforementioned methods for the determination of ^{90}Sr in various certified reference materials were applied. Parameters described in the present paper are indispensable to comparative evaluation of analytical methods for ^{90}Sr determination.

Keywords: ^{90}Sr , analytical methods, comparative evaluation, TBP, crown ether, classical method

IMPACT OF URBAN DEVELOPMENT IN THE TIRANA REGION ON CHARACTERISTICS OF TIRANA–ISHMI CATCHMENT WATERS

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ABSTRACT

In fluvial zone management area, information obtained from assessment and management of the riverine environments is of a great importance as it is a tool to address their restoration. The intent of this paper is to inform on applicability of the indicators framework Driving Forces–Pressures–State–Impact–Response (DPSIR) in a Hydrogeological–Hydrological Information System and GIS context. The indicators allow for assessment of the basins in Albania. In addition, it aims to provide some information about the impact Driving Forces–Pressures have to urban planning. Tirana–Ishmi catchment has been investigated and a set of indicators for the Driving Forces and Pressures categories was defined. In addition, indicators are calculated and discussed. New specific data obtained due to hydrogeological and hydrological investigation, a means to address a better methodology for the Tiranë–Durrës urban management system applying DPSIR model are here in this paper introduced. Moreover, the paper provides some information about preliminary results of a quantitative approach of a set of indicators of the first two models categories such as Driving forces and Pressures. Some sub-watersheds of the river are used as example.

Keywords: indicators, DPSIR model, Tirana–Ishmi basin

CASE REPORT OF ANTERIOR SACRAL MENINGOCELE WITH RECTOTHECAL FISTULA

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ABSTRACT

Located anywhere along the neuronal axis, meningoceles are the most common neural tube defect. Acute bacterial meningitis as the presenting symptom of an anterior sacral meningocele due to a rectothecal fistula is extremely rare. A case report is here presented. Diagnosis was manifested in a previously healthy child with polymicrobial meningitis due to coliforms and anaerobes.

Keywords: defect, meningitis, fistula, polymicrobial

IMPACT OF WATER AND NITROGEN PRICES ON THE IRRIGATION AREA

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ABSTRACT

Bio-economic models of agricultural activities were used to investigate the economic and environmental effects of water and nitrogen prices in the Bardenas irrigation district of Aragón, Spain. The models are based on crop production functions, estimated with the EPIC crop growth simulator. The model results gain further understanding of the impact of various environmental policies on key variables, such production, inputs use, water, nitrogen and labour, quasi-rent and environmental impact by percolation and nitrogen leaching. Farming costs are high due to high-priced water, and water price increases is an inefficient instrument to control nitrogen pollution. The new Water Framework Directive expands aquifer protection over all waters, and defines a mandatory compliance objective to reach “good condition of water”.

Keywords: bio-economic model, inputs price, water and nitrogen demand, environmental impact

ENGINEERING GEOLOGY MAPPING FOR MOTORWAY PLANNING AND DESIGN IN ALBANIA

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ABSTRACT

Engineering geological mapping provides a technical introduction to the principle activities involved in taking a motorway scheme from inception to construction. It helps define geological environment in terms of potential implementation of a particular engineering project, including its anticipated interaction with the planned engineering works in the area. Many geo-factors, including lithology, geomorphology, hydrogeology, geodynamic phenomena and geotechnical characteristics were investigated for land-use planning purposes. Consequently, appropriate road axes for construction have been defined at low cost, with high standards intended to be met. For construction of the Tirana–Elbasan motorway, information on geotechnical and slope stability, together with accurate engineering measurements for route basements improvement are provided. This paper is designed to provide information, from inception to the construction phase, for the Tirana–Elbasan motorway.

Keywords: geo-factor, geo-risk, lithology, geomorphology, hydrogeology, geodynamics, geotechnical characteristics, slope stability, motorway, tectonics, mass movement, erosion

OVERVIEW OF TWO-DIMENSIONAL NANOMATERIALS AND THE CASE OF GRAPHENE

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ABSTRACT

The present paper provides some information about grapheme, a two-dimensional nanomaterial and some of its properties and possible future uses. The structure of tungsten disulphide is compared to that of graphene, suggesting that tungsten disulphide is a suitable material from which a two-dimensional sheet can be produced. After an introduction to Annular Dark Field Scanning Transmission Electron Microscopy (ADF-STEM), an electron microscope image of a single sheet of tungsten disulphide is analysed.

CLASSIFICATION BY TOTAL BACTERIAL COUNT OF SOME RAW MILK SAMPLES IN ALBANIA

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ABSTRACT

The present paper provides information on the impact of total bacterial count on the classification of raw milk into three grades: I (<20,000 cfu/ml), II (20,000-1,000,000cfu/ml) and III (>1,000,000cfu/ml). Samples were collected from three sites across the country. Collecting of 30 milk samples from each of the three locations took place between June 2009 and June 2010. Ninety raw milk samples were taken in all and submitted to microbiological analysis for total colony count. Eighteen (20%) out of 90 samples were grade I, 28 (32%) grade II, and 44 (48%) grade III. In Albania, microbiological analysis and a quality-based payment for the milk need to be done prior to the processing of the milk.

Key words: classification, grade, total colony count, raw milk