



KINGDOM OF SAUDI ARABIA
Ministry of Higher Education
NAJRAN UNIVERSITY
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**papers have been published at peer reviewed
journals for the academic year 1433/1434H**



Deanship of Scientific Research Publication Series



الرقم: ص د-16612-36-440 التاريخ: 28/02/1440 عدد الصفحات: 82



دراسة و مقارنة حول اساليب توقع الاداء للنظم المؤسسة على المكونات

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الخلاصة :

النظم المؤسسة على المكونات اصبحت تسترعى اهتماما واسعا لما تلعبه من دور واضح في تسهيل بناء النظم المعقدة و توفير قدر عالي من الاعتمادية. و يصبح من المهم متابعة و تقييم أداء البرمجية في مراحل مبكرة من بناء النظام. ان تجاهل اداء البرمجيات اثناء تطوير النظام و الانتظار حتى مرحلة اكتمال النظام او مرحلة تكاملية النظم تقود إلى تأخر التعرف على أوجه القصور في الأداء وبالتالي الفشل في تطوير النظام أو عدم الايفاء بمتطلبات المستخدم للمنتج البرامجي و هو ما يعنى زيادة في التكاليف و الجهد. طرق عديدة لتوقع أداء البرمجيات تم اقتراحها إلا انه لا توجد حتى الآن طريقة واحدة شائعة و معظم الطرق عبارة عن أدوات و ليست أساليب ، عليه مازال الحقل في حاجة إلى أساليب متكاملة تراعى خصوصية النظم المؤسسة على المكونات . في هذه الورقة نقدم نتيجة المقارنة التي تم اجراءها بين الاساليب العامة لتوقع الأداء و المتمثلة في أساليب القياس ، الأساليب القائمة على النموذج ، الاسلوب المختلط. نشير الى انه قد تم تنفيذ المقارنة بناءا على معايير مختارة، والهدف النهائي من عملنا المستمر في هذا المجال يتمثل في تقديم طريقة ذات فعالية افضل تحقق الهدف الرئيس المتمثل في تطوير برمجيات ذات أداء عالي.وذلك بتطوير إطار عمل متكامل مزود بالأدوات اللازمة. نتيجة المقارنة تشير إلى فعالية الأسلوب المختلط في التوقع للنظم المؤسسة على المكونات و بالتالي سيتم تضمينه في إطار العمل المقترح في المرحلة المقبلة. من اسهامات هذه الدراسة انها تسلط الضوء على موضوع حيوي باللغة العربية، مما يسهم في تقريب الرؤية لكثير من المفاهيم للمهتمين و الباحثين المستخدمين للغة العربية .

© Communications of the Arab Computer Society, Vol. 4 No.1, August, 2011





تطوير أداء أعضاء هيئة التدريس بجامعة نجران وفقاً لمعايير الجودة والاعتماد الأكاديمي

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الخلاصة :

شهدت السنوات الأخيرة من القرن العشرين تزايداً في كم ونوع بعض المتغيرات العالمية ، التي تركت أثراً بالغاً في منظومة التعليم ، وحثمت ضرورة تفاعل الجامعة مع هذه المتغيرات المتمثلة في الثورة التكنولوجية والثورة المعرفية ، وثورة الاتصالات ، وثورة التكتلات الاقتصادية ، تلك المتغيرات تولد عنها ما يطلق عليه "مجتمع المعرفة" وهو المجتمع الذي يقوم على إنتاج ونشر المعرفة ، لأن المعرفة أصبحت قوة وثروة تقوم عليها اقتصاديات كثير من الدول ، وأصبحت هناك ضرورة لإعداد وتأهيل ما يطلق عليه "عمال المعرفة" . ومع دخول عصر العولمة ، أصبحت عملية ملاحقة الجامعات لهذا التقدم العلمي والتكنولوجي واحدة من أبرز وظائف الجامعة التي تقوم على التخصص المعرفي والمهني ، ويتناسب مع أهداف الجامعة ، وجودة الجهد التعليمي الذي تبذله . ونظراً للتطور المستمر للمعرفة لا يمكن أن نتوقع إمكانية تزويد أعضاء هيئة التدريس بكل ما يحتاجون إليه من معلومات ومهارات واتجاهات قبل الخدمة ، لهذا لابد من متابعة تدريبهم طيلة حياتهم المهنية (الحلبي ، سلامة ، 1425 ، ص 2) . فمطالب التغيير الإيجابي والتطوير النوعي وتحديات العصر وانفجار المعرفة وتقدم تكنولوجيا الاتصال والمعلومات ، والتكنولوجيا المتخصصة في فروع العلوم والفنون المختلفة ، وتقنيات التعليم والتدريس ، إضافة إلى الرؤية الجديدة في التعليم العالي تتطلب تطوير قدرات أعضاء هيئة التدريس ليستطيعوا إتقان جوانب أكثر جدة عما ألفوه طوال حياتهم المهنية . ومن هنا فقد تبنت العديد من الدول - المتقدمة والنامية على حد سواء - فكر وفلسفة الجودة والاعتماد الأكاديمي ، باعتباره نموذجاً تقويمياً فعالاً في قياس جودة المؤسسات التعليمية ، وبرامجها الأكاديمية والمهنية ، يقوم على أساس أن المؤسسة التعليمية لابد أن تتوافر فيها شروط ومواصفات جيدة في كل عناصر العملية التعليمية ، من أساتذة ، وبرامج ، ومناهج وطلاب ، وإمكانات مادية وبشرية ، ويعد الاعتماد الأكاديمي للمؤسسات التعليمية صورة من صور التقويم والتطوير التي لابد أن تتوافر لها المعلومات الضرورية كي تتم وفق الأسس المتعارف عليها في هذا المجال . وقد زاد الاهتمام بجودة عضو هيئة التدريس بصفته أحد





المعايير الأساسية لضبط نوعية التعليم في مختلف مؤسسات التعليم العالي. (بسترفيلد ، 1995 ، ص 115) . فقد اشتملت جميع المعايير العالمية المعتمدة في تقييم الأداء النوعي لمؤسسات التعليم العالي على عنصر مشترك وهو عضو هيئة التدريس ، حيث أن حرص الجامعة على تقييم وتطوير أعضاء هيئة التدريس فيها يعد مؤشراً مهماً في الحفاظ على النوعية وضبط جودة مخرجاتها التعليمية . وقد أوضح (السميع ، 2002 ، ص ص 276 ، 277) أن تطوير أداء عضو هيئة التدريس قد انحصر بداية في الاهتمام بفاعلية الأستاذ في التدريس الجامعي ، إلا أن أمر تطوير أدائه ازداد كماً ونوعاً من أجل تحقيق الإفادة القصوى منه ، حتى يساعد عضو هيئة التدريس الإدارة الجامعية في القيام بالأدوار المطلوبة منها حق القيام . فالإدارة الجامعية يتوجب عليها إعطاء أولوية الاهتمام في الوقت الحاضر لقضايا تطوير أداء أعضاء هيئة التدريس من أجل تحقيق الفاعلية في وظائف الجامعة الثلاثة (التعليم ، البحث العلمي ، خدمة المجتمع) واستعداداً لإلتقان الوظائف الجامعية الجديدة التي بدأت تأخذ مكانها في بعض مؤسسات التعليم العالي الغربية . وقد ورد في دليل التقييم الذاتي والخارجي والاعتماد العام للجامعات العربية ضرورة أن تقوم الجامعة بوضع خطة مستقبلية لتوفير أعضاء هيئة تدريس أكفاء في مختلف التخصصات ، على أن تتضمن الخطة برامج محددة للتطوير المهني لأعضاء هيئة التدريس وتطوير كفاءتهم العلمية والبحثية والمهنية (اتحاد الجامعات العربية ، 2003 ، ص 48) . وفي ضوء ذلك اقترح (القادري ، 2005 ، ص 117) مراحل تطوير أداء أعضاء هيئة التدريس على النحو الآتي : مرحلة تحديد مستوى المهارات المتوافرة لدى عضو هيئة التدريس . مرحلة تحديد القدرات المطلوب توافرها لدى هيئة التدريس في المدى المنظور . مرحلة تخطيط الدورات التدريبية اللازمة للتطوير . مرحلة التنفيذ . مرحلة تقييم عملية التطوير . مرحلة التغذية الراجعة والمتابعة والاستمرارية . وحتى نصل للتطوير بكل أبعاده يجب علينا القيام بعملية تقييم دائمة ومستمرة لقدرات أعضاء هيئة التدريس وأدائهم ومهاراتهم العلمية والبحثية والمهنية ، وأن يتم هذا التقييم وفق معايير ومؤشرات موضوعية محددة ومعدة مسبقاً ، ومستقاة من أفضل التجارب المحلية والإقليمية والعالمية ، وكذلك إتباع مدخل مناسب للتطوير ، وإعداد برامج تدريب متطورة وشاملة ، والاستعانة بخبرات تدريبية كفؤة ، وتوظيف التكنولوجيا التربوية الحديثة بصورة فعالة ، بما يضمن استمرارية التدريب ، ومشاركة أعضاء هيئة التدريس بفاعلية .





إن التركيز على المعايير المتعلقة بالأستاذ الجامعي ينبع من أهمية دوره حيث أصبح من الضروري إكسابه الكفاءات المهنية اللازمة لعمله ، والتي تمكنه من القيام بمهامه بفاعلية وكفاءة ، مع التأكيد على أدواره المتجددة والمنسجمة مع روح العصر ومتطلباته والتي ينبغي أن تظهر في المحصلة على المخرجات التعليمية التي يتعزز وفقها مستوى جودة التعليم . (كنعان ، 2005 ، ص 273) . كما حددت الهيئة القومية لضمان جودة التعليم والاعتماد في مصر (2009 ، ص ص 1-6) إطاراً مرجعياً لمعايير الممارسة الأكاديمية للأستاذ الجامعي مستقى من أفضل التجارب المحلية والإقليمية والعالمية تقوم على أساسه مؤسسات التعليم العالي بتطوير الأداء المهني لمعلميها في أربعة محاور أساسية هي : (التعليم – البحث العلمي – خدمة المجتمع – الجوانب الإدارية والتنمية المهنية) ، ولما كانت جامعة نجران ، جامعة ناشئة ، فإن الأخذ من البداية بمعايير الجودة والاعتماد الأكاديمي ، يجعل الجامعة تخطو خطوات ثابتة نحو الاعتماد وضمان الجودة ، ولذا فإن البحث الحالي يستهدف التعرف على واقع أداء أعضاء هيئة التدريس و المتطلبات التربوية لتطوير أدائهم بجامعة نجران في مجالات (التعليم – البحث العلمي – خدمة المجتمع – الجوانب الإدارية والتنمية المهنية) . من أجل الإفادة منها في تطوير أداء أعضاء هيئة التدريس بجامعة نجران بالمملكة العربية السعودية .

مجلة كلية التربية - جامعة الأزهر
العدد (145) - مارس 2011م





تصور مقترح لتطوير كلية التربية بجامعة نجران

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الخلاصة :

هدفت الدراسة عمل تصور مقترح لتطوير كلية التربية بجامعة نجران ، ولتحقيق ذلك استخدم الباحثان : المنهج الوصفي ، و الاستبانة بعد التحقق من صدقها وثباتها ، حيث اشتملت على (222) فقرة توزعت على ثلاثة أقسام . وتكونت عينة البحث من جميع أعضاء هيئة التدريس والطلاب المنتسبين لكلية التربية بجامعة نجران للعام الجامعي -1431 1432 هـ ،

وكانت أهم النتائج : أن أفراد العينة يرون تطبيق جميع الفقرات (المعايير) المعروضة في الأداة ، مع تفاوت بينهم في ترتيب تلك المعايير ، ولم يكن هناك فروق ذات دلالة بين آراء أعضاء هيئة التدريس والطلبة (حيث كانت الفقرات - المعايير - محل اتفاق) ، وكان ترتيب الثلاث الأولى في مجالات الاستبانة على الشكل التالي:

في القسم الأول : في مجال الإعداد المهني للمعلم: يتعامل مع المشكلات بحلول ملائمة - ينوع أساليب التدريس - يتقيد بالأنظمة والقوانين المنظمة للعمل . وفي مجال الإعداد الاجتماعي - الشخصي للمعلم: يلتزم بأداب مهنة التدريس - يتمتع بقوة الشخصية - يعتز بمهنته كمعلم . أما في مجال الإعداد الثقافى للمعلم: يدرك حقوق الإنسان وفقاً للمبادئ الإسلامية - يسعى إلى زيادة ثقافته التخصصية - يمتلك مستوى ثقافياً جيداً في المجالات العلمية. وفي مجال الإعداد الأكاديمي للمعلم: يلم بالتجارب الجيدة في ميدان تخصصه - يتعرف طرائق تنظيم المنهج وتطويره - يذكر أهم الشخصيات المبرزة في مجال تخصصه.

وفي القسم الثاني: في مجال الأهداف: يوجد أهداف عامة للبرنامج - مصاغة إجرائياً (قابلة للقياس) - تتصف بالشمولية . وفي مجال المحتوى برنامج إعداد المعلم وتأهيله: يوازن بين الخبرات النظرية والخبرات العملية - يستفيد من إمكانيات البيئة المحلية - يُكسب الطلبة المعلمين قيمة خيرة . وفي مجال الإدارة التعليمية: تمتلك خبرات تربوية - تمتلك شخصية قيادية - يتوافر لديها اتجاه إيجابي نحو العمل التعليمي. وفي مجال تقنيات التعليم : تشجع على التفكير العلمي - تناسب عدد الطلاب داخل





القاعة - سهولة الاستعمال . وفي مجال احتياجات البرنامج: توفر أدوات علمية لقياس أداء الطلاب المعلمين - تتوفر الاحتياجات المادية للبرنامج - يتوفر عدد كاف من أعضاء الهيئة التعليمية. وفي مجال المنشأة: توافر مختبرات الحاسوب - كفاية التهوية الطبيعية - كفاية الإضاءة والتهوية الصناعية. وفي مجال أعضاء هيئة التدريس: يتناسب عددهم مع التخصصات الموجودة - يمتازون بالكفاءة والجودة - يمتازون بالتمكن من المادة العلمية. أما في مجال التقويم فكانت: يتناول التقويم جميع جوانب العملية التعليمية - يوجد معايير واضحة تحدد مستوى الأداء الجيد - تمتاز أساليب التقويم بأنها قابلة للتطبيق. وفي مجال طرائق التدريس: تعمل على تحقيق الأهداف المحددة - تثير انتباه الطلبة المعلمين - تتناسب مع الوقت المتاح .

وفي القسم الثالث: كانت النسبة المئوية لرأي أفراد عينة البحث في نوع ومدة زمن البرنامج 63% من الطلاب أيدوا البرنامج التكاملي لمدة أربع سنوات ، وأيد 70% من أعضاء هيئة التدريس البرنامج التكاملي لمدة خمس سنوات ، أما البرنامج التتابعي فأيدته 18% من أعضاء هيئة التدريس مقابل 7% من الطلاب . هذا ويؤيد الباحثات ما جاء في هذا المقترح في أقسامه الثلاث ، ويوصيان بتطبيق ذلك في كلية التربية بجامعة نجران.

مجلة جامعة حضرموت للعلوم الإنسانية

العدد 2 ، المجلد 9 ، ديسمبر 2012م





تقويم برنامج الدبلوم التربوي بجامعة نجران في ضوء معايير الاعتماد الأكاديمي السعودية

د. محمد هادي علي الفقيه

د. علي احمد حسن الربيع

جامعه نجران

الخلاصة:

هدف البحث : تعرف إلى أي مدى يتطابق برنامج الدبلوم التربوي بجامعة نجران مع المعيار الرابع (التعلم والتعليم) من معايير الجودة والاعتماد الأكاديمي في المملكة العربية السعودية ، شمل مجتمع البحث جميع أعضاء هيئة التدريس بكلية التربية بالجامعة وكانت العينة هي كل المجتمع ، استخدم الباحثان المنهج الوصفي والاستبانة ، وبعد تحليل النتائج كانت النتيجة على الشكل التالي : أن مجالات مؤهلات هيئة التدريس وخبراتهم ، وجودة التدريس ، ونواتج تعلم الطلبة ، من مجالات المعيار الرابع (التعلم والتعليم) متطابقة مع معايير الاعتماد الأكاديمي السعودية لدرجة ليست مرتفعة ، أما بقية المجالات فتحتاج لتطوير وإعادة نظر فيها وهي مرتبة من الأكثر احتياجاً للتطوير إلى الأقل على التوالي : عمليات تقويم البرنامج ومراجعته ، دعم جهود تحسين جودة التدريس ، عمليات تطوير البرامج ، تقييم الطلبة ، المساعدات التعليمية للطلبة ، أنشطة الخبرة الميدانية .

مجلة جامعة حضرموت للدراسات الإنسانية

العدد 2 ، المجلد 10 ، ديسمبر 2012م





الرضا الوظيفي و أثره على الإلتقان لدى أعضاء هيئة التدريس بجامعة (نجران دراسة تحليلية) بالتطبيق على مجمع الطالبات - جامعة نجران

د. أمل ظافر الشهري . د. فادية عبد الله الضو الأمين

جامعة نجران

الخلاصة :

هدف البحث إلى التعرف على القوانين و اللوائح الوظيفية بالجامعات السعودية بما فيها جامعة نجران ومدى إلمام بعض منسوبي الجامعة (أعضاء هيئة التدريس) بتلك القوانين و اللوائح بالإضافة إلى المهام والواجبات لكل فئة من الفئات (قيد الدراسة) . ومدى الرضاء الوظيفي المرتبط بالجانب التطبيقي لتلك القوانين و اللوائح و بناء عليه ظهرت مشكلة البحث و المتمثلة في (تأثير الرضاء الوظيفي على الأداء) و بالتالي التأثير على الإلتقان بالكليات قيد الدراسة . ولكل ما ذكر سابقا سعت الباحثتان لإيجاد آلية مقننة للتعرف على مدى الرضاء الوظيفي لبعض منسوبي الجامعة ، وإمكانية إيجاد الحلول التي تناسب الإمكانيات المادية و البشرية المتاحة . و اتبعت الباحثة المنهج الوصفي التحليلي و يمثل المجتمع بعض منسوبي الجامعة (أعضاء هيئة التدريس) بمجمع الطالبات ، تم أخذ عينه عشوائية من المجتمع المحدد . وكانت الوسيلة المتبعة لجمع تلك البيانات هي الاستبانة (المكونة من جزأين) تمثل الأولى : التعرف على القوانين و اللوائح ، و تمثل الثانية : مدى الرضاء الوظيفي و العوامل المؤثرة عليه (الرواتب ، البدلات ، الحوافز ، ساعات العمل ، المناصب الإدارية ، المسمى الوظيفي وغيرها) و أثر كل ذلك على الإلتقان . و المرحلة الأخيرة من الدراسة هي : مرحلة التحليل الإحصائي و استخراج النتائج ثم التوصيات و المقترحات . أهم نتائج الدراسة :-





- ١- لا تأثير للخبرة و الكلية على المعرفة بالقوانين ، اللوائح و بالتالي على الرضا الوظيفي و الإلتقان .
- ٢- عدم الإلمام ببنود العقد و صياغته (بدرجة كبيرة) لغير السعوديين .
- ٣- عدم الإلمام بالحقوق والواجبات (للسعوديين و غير السعوديين) .
- ٤- عدم الإطلاع على اللائحة و شروط التوظيف قبل و أثناء و بعد توقيع العقد (لغير السعوديين) .
- ٥- أكدت الدراسة على أن العوامل ذات الصلة بالجوانب الأكاديمية ، التدريسية و البحث العلمي أكثر تأثيرا على الرضا الوظيفي من غيرها (كالجوانب الوظيفية ، الإدارية و الخدمات) للسعوديين غير السعوديين .
- ٦- تأجيل أو عدم انجاز المعاملات يؤثر سلبا على الإلتقان (للسعوديين و غير السعوديين)

مجلة دراسات عربية في التربية وعلم النفس

العدد ٣٢ لشهر ديسمبر ٢٠١٢ من المجلة





«أثر استخدام طريقة الويب كويست علي تنمية نزعات التفكير الإبداعي ومهاراته لدي طالبات جامعة نجران»

د. يحيى سليمان إبراهيم الحفظي . د. ياسر بيومي أحمد عبده . د. جمعة السيد نعناعة
جامعة نجران

الخلاصة :

استهدفت الدراسة قياس أثر استخدام طريقة الويب كويست web Quest علي تنمية نزعات التفكير الإبداعي ومهاراته لدي طالبات جامعة نجران، ولتحقيق هذا الهدف قام فريق البحث بدراسة تحليلية نظرية لنزعات التفكير الإبداعي ومهاراته، وإعداد دليل المعلم وفق طريقة الويب كويست في مقرر علم الاحياء ١٠١ حيا - ٤ لطالبات كلية العلوم والآداب قسم الكيمياء والفيزياء والرياضيات في موضوع (الخلية). كما تم إعداد مقياس نزعات التفكير الإبداعي واختبار مهارات التفكير الإبداعي وتطبيقهما علي عينة من طالبات كلية العلوم والآداب من أقسام الكيمياء والفيزياء والرياضيات - بلغ عدد أفراد العينة (١٥٧) طالبة يمثلون المجموعة التجريبية. وقد توصلت الدراسة إلي نتائج من أهمها. - توجد فروق ذات دلالة إحصائية عند مستوى ٠,٠١ بين متوسطي درجات المجموعة التجريبية في القياس القبلي والبعدي على مقياس نزعات التفكير الإبداعي (حب المغامرة، وتحدي الصعب، وحب الاستطلاع، والتخيل) لصالح القياس البعدي. - توجد فروق ذات دلالة إحصائية عند مستوى ٠,٠١ بين متوسطي درجات المجموعة التجريبية في القياس القبلي والبعدي على اختبار مهارات التفكير الإبداعي (الطلاقة، والمرونة، والأصالة، والتحسينات) لصالح القياس البعدي. وعليه يمكن القول أن طريقة الويب كويست web Quest أثبتت فعاليتها في تنمية نزعات التفكير الإبداعي ومهاراته لدي طالبات جامعة نجران.

المجلة العلمية بكلية التربية جامعة ذمار

العدد الثاني عشر 2011





دور برامج إعداد الطلاب بجامعة نجران في تنمية اتجاهاتهم البيئية - دراسة تشخيصية -

د. منصور نايف العتيبي ، د. سعيد محمد محمد السعيد ، د. ياسر بيومي أحمد عبده
جامعة نجران

الخلاصة:

استهدفت الدراسة التعرف علي دور برامج إعداد الطلاب بجامعة نجران في تنمية اتجاهاتهم البيئية ، ولتحقيق هذا الهدف قام فريق البحث ١- بإعداد قائمة بالقضايا والمشكلات البيئية بالملكة العربية السعودية، وعرضها على مجموعة من الخبراء في العلوم البيئية والتربية البيئية من خلال استبانة تعد لهذا الغرض ٢- كما تم تحليل محتوى مقررات (التربية البيئية - الثقافة الصحية - حفظ وتخزين الاغذية - مبادئ ميكروبيولوجي الأغذية - الحشرات المنزلية وأسس مقاومتها علوم الأطعمة - أسس إعداد الأطعمة - أسس تغذية الإنسان - الاسعافات الأولية والتمريض المنزلي - أحياء عامة) في ضوء قائمة القضايا والمشكلات السابق تحديدها، مع التأكد من موضوعية عملية التحليل، ورصد النتائج في صورتها النهائية ٣- معرفة مدى اكتساب طلاب جامعة نجران للاتجاهات البيئية المرغوبة نحو قضايا (المياه وترشيد استهلاكها - التصحر البيئي - التلوث البيئي - حسن استغلال الموارد الطبيعية وتمييزها) من خلال إعداد مقياس لتعرف الاتجاهات البيئية لطلاب جامعة نجران باستخدام طريقة ليكرت Likert مع التأكد من صدقه وثباته وقدرة عباراته على التمييز، وتكون هذا المقياس في صورته النهائية من (٥٠) عبارة تم تطبيق المقياس على عينة الدراسة البالغ عددها (٨٥١) طالب وطالبة بالكلية النظرية والعملية بجامعة نجران (فرعي: نجران وشروهر) وقد توصلت الدراسة الي نتائج من أهمها: توجد فروق ذات دلالة إحصائية بين متوسط درجات طلاب المستوى الأول في مقياس الاتجاهات، ومتوسط درجات طلاب المستوى السابع على مستوى دلالة ٠,٠٥ لصالح طلاب المستوى السابع. لا توجد فروق ذات دلالة إحصائية بين متوسطي درجات طلاب وطالبات المستوى السابع علي مقياس الاتجاهات البيئية وفقا لنوع التخصص. لا توجد فروق ذات دلالة إحصائية بين متوسطي درجات طلاب وطالبات المستوى السابع علي مقياس الاتجاهات البيئية وفقا لنوع الجنس (ذكر - انثي) وبذلك يتضح أن عامل الجنس غير مؤثر علي إلمام طلاب وطالبات المستوى السابع للمفاهيم والقضايا البيئية.

مجلة دراسات في المناهج وطرق التدريس





الضغوط الوظيفية وعلاقتها بالتوجه الشخصي

لدى عينة من الإداريين بجامعة نجران

د. منصور بن نايف العتيبي د. أسامة بن حسن جابر

جامعة نجران

الخلاصة:

يتسم العصر الحديث بتزايد الضغوط الوظيفية المفروضة على المنظمات والأفراد وتسعى المنظمات لمواجهة تلك الضغوط بما يضمن لها البقاء والاستمرار ويساعدها على إدارة ضغوط العمل التي يتعرض لها الأفراد بشكل يؤدي إلى تحسين جودة العمل ورفع الكفاءة، وتكمن أهمية هذا البحث في كونه يمثل إضافة في المكتبة العربية نظراً لوجود نقص في الدراسات العلمية المهمة بالضغوط الوظيفية لدى الإداريين حيث يعد في ضوء علم الباحثان بأنه الدراسة الأولى المهمة بدراسة الضغوط الوظيفية لدى الإداريين بجامعة نجران، ويهدف هذا البحث للتعرف على العلاقة بين الضغوط الوظيفية والتوجه الشخصي، والتعرف على مدى الفروق والاختلافات بين الإداريين والإداريات في الضغوط الوظيفية، وطبقت هذه الدراسة على عينة من الإداريين والإداريات ممن لديهم خبرة ثلاث سنوات، وتكونت عينة الدراسة الكلية من (١٢٢) إداري وإدارية، من جامعة نجران وكلياتها، واستخدم الباحثان مقياس الضغوط الوظيفية (إعداد الباحثان) ومقياس التوجه الشخصي وتحقيق الذات وهو من تأليف أيفريت شوستروم Everet.LShostrom الذي قام طلعت منصور فيولا البيلاوي بترجمته وإعداده للعربية.

مجلة دراسات عربية في التربية وعلم النفس

العدد الحادي والعشرون - 2011م





أسباب وعوامل التسرب لدى طلاب السنة التحضيرية بجامعة نجران

د. محمد بن عبدالله آل مرعي

جامعة نجران

الخلاصة:

سعت هذه الدراسة إلى التعرف على الأسباب و العوامل التي أدت إلى تسرب طلاب السنة التحضيرية في جامعة نجران وتقديم مقترحات و حلول لتطوير العمل في برنامج السنة التحضيرية، وتقليل نسبة الهدر والتسرب إلى أقل حد ممكن. ولتحقيق أهداف هذه الدراسة صمم الباحث استبانة تكونت من جزأين: الجزء الأول عن المعلومات و الخصائص الديموغرافية والاقتصادية والاجتماعية للعينة، و الجزء الثاني تكون من ٢٦ عبارة عن أسباب التسرب أجاب عنها ٧٦ طالباً متسرباً من السنة التحضيرية لعام ١٤٢٩-١٤٣٠هـ. وقد استخدم الباحث التكرارات و النسب المئوية والمتوسطات و الانحرافات المعيارية لتحليل البيانات التي جمعت من العينة. وكانت أبرز النتائج كما يلي:

معظم الآباء من ذوي الدخل المحدود ، ويعملون في وظائف بسيطة، بالإضافة إلى أن معظم الآباء و الأمهات لم تتجاوز مؤهلاتهم الدراسية المرحلة المتوسطة في التعليم. كما بينت الدراسة أن النسبة العظمى من الطلاب المتسربين من الأسر ذات الحجم الكبير، ويقع ترتيب معظمهم ضمن المراكز الثلاثة الأولى بين إخوانهم. ويجمعون بين مشاهدة التلفاز و تصفح الانترنت كما أكدت الدراسة على تأثير العوامل الدراسية و الشخصية و التنظيمية و الاقتصادية و الاجتماعية بدرجة كبيرة إلى متوسطة. كما قدمت الدراسة بعض المقترحات و الحلول لعلاج تلك المشكلة.

١- الجمعية السعودية للعلوم التربوية والنفسية (جسنت)- الرياض (١٤٣٢هـ/٢٠١١)





فعالية تصميم بيئة تعلم إلكترونية في تحصيل مقرر طرق تدريس الرياضيات «لدى طلاب جامعة نجران في ضوء متطلبات التعلم الإلكتروني»

د. محمد علي الشهري د. محمد محمد عبيد
جامعة نجران

الخلاصة:

يهدف البحث الحالي الى تقديم تصور مقترح لبيئة تعلم إلكترونية وقياس أثرها في تنمية التحصيل الدراسي لمقرر طرق تدريس الرياضيات لدى طلاب جامعة نجران، ولتحقيق هدف البحث عمد الباحثان الى تطوير بيئة تعلم إلكترونية يتم إدارته بنظام إدارة المحتوى الإلكتروني موودل (Moodle) يتم من خلالها تدريس مقرر طرق تدريس الرياضيات لدى طلاب المستوى السابع بقسم الرياضيات بكلية العلوم والآداب بجامعة نجران. وقد اختار الباحثان عينة قصدية من طلاب القسم المسجلين لهذا المقرر في الفصل الدراسي الثاني ١٤٣٢/١٤٣٣ هـ وتقسيمهم إلى مجموعتين احداها تجريبية والأخرى ضابطة. وقد توصلت الدراسة إلى تفوق طلاب المجموعة التجريبية في الاختبار التحصيلي على طلاب المجموعة الضابطة مما يشير إلى فعالية بيئة التعلم الإلكترونية في تنمية التحصيل الدراسي لمقرر طرق تدريس الرياضيات لدى طلاب جامعة نجران.

المجلة التربوية الدولية المتخصصة

العدد 11 ، المجلد 1 ، كانون الأول (ديسمبر) 2012م.





أسباب العنف الأسري بين الزوجين وسبل الحد منه من وجهة نظر أعضاء هيئة التدريس في جامعة نجران

د. محمد بن عبد الله حسين الحازمي
جامعة نجران

الخلاصة:

تهدف الدراسة إلى التعرف على أسباب العنف الأسري بين الزوجين وسبل الحد منه من وجهة نظر أعضاء هيئة التدريس في جامعة نجران .

ولتحقيق أهداف هذه الدراسة صمم الباحث استبانة تكونت من محورين: المحور الأول عن أسباب العنف الأسري بين الزوجين، والمحور الثاني عن سبل الحد منه أجاب عنها ٧٠ من أعضاء هيئة التدريس من الذكور والإناث في كليتي الشريعة والتربية للعام الدراسي ١٤٣٢هـ-١٤٣٣هـ. وقد استخدم الباحث المتوسطات والانحرافات المعيارية واختبار (ت) لتحليل البيانات التي جمعت من العينة. وكانت أبرز النتائج كما يلي :

١. اتفق أعضاء هيئة تدريس كلية التربية وكلية الشريعة على أن أسباب العنف الأسري بين الزوجين تتمثل في الأسباب الدينية و النفسية والشخصية ، والاجتماعية و الثقافية ، والاقتصادية على اختلاف بسيط في ترتيبها بين أعضاء هيئة التدريس في كل كلية، وأعطى أعضاء هيئة تدريس كلية التربية الأسباب الدينية أعلى نسبة بينما أعطى أعضاء هيئة تدريس كلية الشريعة الأسباب النفسية والشخصية أعلى نسبة.

٢. حازت جميع فقرات سبل الحد من العنف الأسري بين الزوجين على موافقة أعضاء هيئة التدريس .
٣. كما قدمت الدراسة بعض التوصيات والحلول للحد من العنف الأسري بين الزوجين، أهمها : تضمين المناهج الدراسية كافة القيم والأساليب التربوية التي تسهم في الحد من ظاهرة العنف في المجتمع بصورة عامة ، والعنف الأسري بصورة خاصة ، والتوعية المجتمعية لمفهوم الزواج في الإسلام بالوسائل المختلفة والمتطورة ، وتوضيح حقوق كلا الزوجين للمقدمين على الزواج .





أولويات بحوث التربية الخاصة وتوجهاتها المستقبلية من وجهة نظر معلمي التربية الخاصة بالمملكة العربية السعودية « دراسة تحليلية »

أ.د. عبدالله علي محمد إبراهيم د. نادية محمد شريف عبدالقادر
جامعة بجران

الخلاصة:

أصبح البحث العملي وسيظل دائما المدخل الطبيعي للتقدم الحضاري والتنمية الشاملة لأي مجتمع يحاول اللحاق بركب الحضارة المعاصرة، ومجاراة التطور العلمي والتكنولوجي على المستوى العالمي في مجال التربية الخاصة، بل والمشاركة في صنعه، ولن يحدث ذلك الا بمقدار ما يسهم به البحث العلمي في مجال التربية الخاصة بتوجهاتها المختلفة وتعلمها من خلال جهود حقيقية لدفع عجله التنمية والتطوير، وذلك لأن نتائج بحوث التربية الخاصة بمساراتها المختلفة تلعب دورا مهما وفعالا في تحسين الممارسات التعليمية لتعليم المقررات وتفعيلها داخل حجرات الدراسة، والذي يعد مدخلا رئيسيا من مداخل التنمية والارتقاء والتطور.

مجلة كلية التربية جامعة الأزهر

العدد 149 - 2012م





متطلبات تفعيل التعلم الالكتروني في ضوء اتجاهات وكفايات أعضاء هيئة التدريس بجامعة نجران

د. منى علي سيف ذياب

د.نادية محمد شريف

جامعة نجران

الخلاصة :

لقد شهد العالم خلال السنوات القليلة الماضية ثورة تكنولوجية هائلة في استخدام تقنيات الحاسب الآلي في شتى مجالات حياتنا ، وقد حدث التطور الكبير في الخدمات التي يقدمها الحاسوب ، بعد أن برزت شبكة الانترنت بخصائصها الحالية، خلال السنوات القليلة الماضية ، وأصبحت أسلوباً للتبادل المعرفي بين مختلف المؤسسات التعليمية في العالم، وقد حققت تكنولوجيا المعلومات والاتصالات طفرة هائلة بظهور شبكة الانترنت.

ونظراً لأن التربويين يبحثون باستمرار عن أفضل الطرق والوسائل للتوفير بيئة تعليمية تفاعلية لجذب انتباه الطلاب وحثهم على تبادل الآراء والخبرات ، فقد ظهر التعلم الالكتروني كأسلوب للتعلم وهو التعلم باستخدام الحاسبات الآلية وبرمجياتها المختلفة سواء على شبكات مغلقة او شبكة الانترنت ، والتعلم الالكتروني يختلف عن غيره من أساليب التعلم في أنه يساعد المتعلم على التعلم في الوقت والمكان المناسب له ، وبالسرية والمحتوى الملائمين له (الغراب ، ٢٠٠٣)

مجلة كلية التربية جامعة الأزهر

العدد 148 - 2012م





Accurate Orthogonal Circular Moment Invariants of Gray-Level Images

*Khalid Mohamed Hosny
Najran University*

Abstract:

Problem statement: Orthogonal circular moments of gray level images such as Zernike, pseudo Zernike and Fourier-Mellin moments are widely used in different applications of image processing, pattern recognition and computer vision. Computational processes of these moments and their translation and scale invariants still an open area of research. Approach: a unified methodology is presented for efficient and accurate computation of orthogonal circular moment invariants. The orthogonal circular moments and their translation and scale invariants are expressed as a linear combination of radial moments of the same order in polar coordinates, where the later moments are accurately computed over a unit disk. A new mapping method is proposed where the unit disk is divided into non-overlapped circular rings; each of these circular rings is divided into a number of circular sectors of the same area. Each circular sector is represented by one point in its centre. The total number of input Cartesian image pixels is equal to the number of mapped circular pixels. Results: The implementation of this method completely removes both approximation and geometrical errors produced by the conventional methods. Numerical experiments are conducted to prove the validity and efficiency of the proposed method. Conclusion: A unified methodology is presented for efficient and accurate computation of orthogonal circular moment invariants.

Journal of Computer Science 7 (5): 7152011 ,722-ISSN 15492011 © 3636- Science Publications 715





Lack of Significant Relationship between Pulmonary Functions and Breastfeeding in Primary School Saudi Children in Najran city

Jobran M. Al Qahtani and Samy M. Abd El-Aziza
Najran University

Abstract:

Background: The importance of breastfeeding to childhood asthma is a controversial issue. In Saudi Arabia, many researchers have studied the prevalence of bronchial asthma in all population categories, and in most Saudi regions. However, there is no any study about the relationship between breastfeeding and respiratory functions in Saudi children. **Objective:** Our work is planned to study the relationship between breastfeeding and pulmonary functions in primary school Saudi children. **Methodology:** The study was conducted on 310 male Saudi students (10-12-year-old). They were chosen randomly from five primary schools selected geographically to cover the whole Najran city. Parental questionnaires were used to collect data about breastfeeding. Pulmonary function tests were measured for all students. **Results:** There is no significant relationship between breastfeeding (exclusive or mixed, and of any duration) and pulmonary functions, history of asthma or allergy. **Risk factors** that were found to be significantly associated with asthma were: history of allergy and the presence of asthmatic brother, father, mother or smoker in the family. **Conclusion:** There is a lack of significant relationship between breastfeeding and pulmonary functions, history of allergy or asthma, in primary school Saudi children. **Keywords:** breastfeeding, pulmonary functions, asthma, allergy, children.

.Vol. (16), NO.(3), July 2010 Al Qahtani and Abd El-Aziz





Urocortin 1 inhibits guinea pig gallbladder contractility in vitro via corticotropin-releasing factor receptor 2

Samy M. Abd El-Aziz and Basel A. Abdel-Wahab
Najran University

Abstract:

In this study, we tested the effect of urocortin 1 (Ucn1) on the contractility of gallbladder smooth muscle (GBSM) strips from guinea pigs and studied the involvement of corticotropin-releasing factor (CRF) receptors in this effect. The effect of Ucn1 on the isometric contractions of non-contracted and acetylcholine (Ach)-contracted GBSM, and the effects of CRF-R antagonists antalarmin and astressin 2B on the effect of Ucn1 were studied. In addition, the expression of receptors for CRF-R1 and CRF-R2 in guinea pig gallbladder were investigated using reverse transcription – polymerase chain reaction (RT-PCR). Ucn1 dose-dependently inhibited the contractility of GBSM. Moreover, Ucn1 decreased the resting tension, the mean contractile amplitude, and the contractile frequency in both non-contracted and Ach-contracted strips of GBSM. Furthermore, Ucn1 induced rightward shift of the Ach concentration–response curve of Ach in Ach-contracted strips. This inhibitory effect of Ucn1 on both non-contracted and Ach-contracted strips was inhibited by astressin 2B, but not by antalarmin. RT-PCR demonstrated that the CRF-R2, but not CRF-R1 receptor subtype is expressed in the muscularis muscle of guinea pig gallbladder. In conclusion, Ucn1 has an inhibitory effect on the contractility of GBSM of guinea pig mediated through stimulating CRF-R2 receptors in GBSM. More studies are needed to clarify the intracellular signaling events involved in this effect. Key words: urocortin 1, guinea pig gallbladder, gallbladder smooth muscle, corticotropin-releasing factor, antalarmin,





astressi2B, corticotropin-releasing factor receptors. Résumé : Dans la présente étude, nous avons examiné l'effet de l'urocortine 1 (Ucn1) sur la contractilité de bandelettes de muscles lisses de vésicule biliaire (MLVB) de cobayes, et déterminé le rôle des récepteurs du facteur corticotrophine-libération (CRF) dans cet effet. Nous avons examiné l'effet de l'Ucn1 sur les contractions isométriques de MLVB contractés par l'acétylcholine (ACh) et de MLVB non contractés, ainsi que les effets des antagonistes des récepteurs CRF (CRF-R), antalarmin et astressine 2B, sur celui de l'Ucn1. Nous avons de plus analysé l'expression de la corticolibérine et des récepteurs CRF-R1 et CRF-R2 dans la vésicule biliaire des cobayes par la méthode transcription inverse – réaction de polymérase en chaîne (RT-PCR). L'Ucn1 a inhibé de manière dose-dépendante la contractilité des MLVB, et diminué la tension au repos, l'amplitude contractile moyenne et la fréquence contractile dans les bandelettes contractées et non contractées des MLVB. L'Ucn1 a aussi déplacé vers la droite la courbe dose-réponse à l'ACh dans les bandelettes contractées par l'ACh. Cet effet inhibiteur de l'Ucn1 sur les bandelettes contractées par l'ACh et les bandelettes non contractées a été bloqué par l'astressine 2B, mais pas par l'antalarmin. L'analyse RT-PCR a démontré que seul le sous-type de récepteur CRF-R2 est exprimé dans la musculature de la vésicule biliaire des cobayes. En conclusion, l'Ucn1 a un effet inhibiteur sur la contractilité des MLVB de cobayes, véhiculé par la stimulation des récepteurs CRF-R2 dans les MLVB. D'autres études sont nécessaires pour identifier les événements de signalisation intracellulaire participant à cet effet. Mots-clés : urocortine, vésicule biliaire, muscle lisse de la vésicule biliaire, corticolibérine, antalarmin, astressine 2B, récepteurs de la corticolibérine. [Traduit par la Rédaction.]

Can. J. Physiol. Pharmacol. Vol. 89, 2011





Role of Antioxidants and Exercises therapy Program in modulation of Hand Functions in Diabetic Neuropathy

Yasser Ibrahim Seadaa, Mohamed Saied Tawfikba
Najran University

Abstract:

The purpose of the study was designed to clarify the role of antioxidants and exercises therapy program on modulation of hand functions in diabetic neuropathy. In this respect, the muscles power of both flexors and extensors in wrist and fingers, the range of their motion of wrist and fingers flexion and extension and their effect of motor nerve conduction velocities and electromyography study of median nerve in both sexes. Subjects Sixty males and females were insulin dependent diabetic patients , their age ranged from 4060-years old and their weight ranged from 6090-Kg. They were randomly divided into three equal groups (G1,G2 and G3). G1cosists of 20 type2 insulin dependent diabetic patients of both sexes and was treated by antioxidants only without any exercises therapy program, G2 consists of 20 type1 insulin dependent diabetic patients of both sexes and was treated by exercises therapy program only without antioxidant and G3 consists of 20 type1 insulin dependent diabetic patients of both sexes and was treated by antioxidants and exercises therapy program. Vital signs as blood pressure, body temperature, pulse rate and respiratory rate were measured before and after the treatment sessions. Assessments, in all group studied, Tensiometer was used to measure the muscle power of flexors and extensors in wrist and fingers, the digital goniometer was used to investigate the range of their movement either during flexion and extension, Purdue beg board was used to measure of hand functions





either prehension or counting. Moreover, by the use of standard nerve conduction velocity and electromyography (NCV-EMG) to measure motor nerve conduction velocity, AP amplitude and their latencies and compound muscle action potentials of median nerve. Statistically the results for all groups were analyzed by ANOVA to compare the differences between the three groups. The statistical package of social sciences (SPSS, version10) was used for data processing using the p-value 0.05 as a level of significance. Results, showed that there was significant improvements in all variables in G3 only. However, there was a little improvement but not significant in both G1 and G2 with best results for G2 regarding to clinical and electrophysiological parameters. Therefore, it could be concluded that the use of antioxidants combined with exercises program were the good method to improve hand function, increase muscle power of flexors and extensors of wrist and fingers and the range of their movements together with determination of motor nerve conduction velocities and electromyography. Our results open a new link to manage the motor deterioration of hand function in diabetic neuropathies via the use of antioxidants combined with exercises program..

.Vol. (16), NO.(3), July 2010 Al Qahtani and Abd El-Aziz





The Effectiveness of Gifted Students Centers in Developing Geometric Thinking

*Mohammad Ali Al-Shehri, Suhail Al-Zoubi, and Majdoleen Bani
Abdel Rahman
Najran University*

Abstract:

This study aimed to measure the effectiveness of gifted students centers in developing geometric thinking. The sample consisted of sixty gifted students. The participants were distributed into two equal groups. The control group composed of thirty students studying at Giftedness Resource Rooms in Najran, Kingdom of Saudi Arabia (KSA), and the experimental group composed of thirty students studying at Gifted Center in Najran. A multiple-choice geometric thinking test was used as pretest and posttest for both groups. Based on the analysis of data, results will be discussed.

*Educational Research (ISSN: 21415161-) Vol. 2(11) pp. 16761684- November
2011 Available online @ <http://www.interestjournals.org/ERC> Copyright © 2011
International Research Journals Full Length Research paper*





WSN-based Support for Irrigation Efficiency Improvements in Arab Countries

*Ali AL-HAMDI, Ahmed Monjurul HASAN and Muhammad
AKRAMIS
Najran University*

Abstract:

Arab countries suffer from an acute water scarcity where most of its parts depends on underground resources on water consumptions. Among the different consumptions, agriculture is the sector that demands the highest percentage of water for irrigation. Anthropogenic factors and mismanagement of irrigation process play a significant role to make the water situation more severe. Nevertheless, with proper supporting tools, the irrigation efficiency can be improved. The work in this paper aims at proposing a contextual architecture model utilizing WSN technology. The ultimate goal of this model is to support the operation and management of irrigation technologies and the irrigation stakeholders' activities as well.

The 12th International Arab Conference on Information Technology (ACIT' 2011), Volume II, page: 257264-, December, 112011 ,14-, Naif Arab University for Security Sciences, Riyadh, KSA. 2011Available online@ <http://www.interesjournals.org/> ERCopyright © 2011 International Research Journals Full Length Research paper





Fabrication of high sensitive gas sensors based on dimensional ZnO and SnO nanowires

SANG HOON KIM, SANG WOON HWANG

Najran University

Abstract:

The oxide semiconductors are important gas sensing materials due to their good sensitivity and accuracy in detection of the some minor components in the gas phase which are important for the safe environmental maintenance and the control of reaction process and productivity. The sensing behavior is the most important property of 1D metal oxide materials due to their high sensitivity to their chemical environment. The sensing mechanism of the metal oxide based gas sensors lies on a change in the electrical conductivity due to the process of interaction between the available reactive species at the surface of the nanowire and the gas molecules of the targets. It is well known that the oxygen vacancies on the oxide surfaces are electrically and chemically active. Among all nanomaterials, ZnO, with a wide band gap and large exciton binding energy possesses several advantages in the fabrication of various electronic devices. In this research, we decide one material that is standard material ZnO. And the undoped/doped ZnO and SnO₂ nanowires are synthesized by thermal evaporation process exhibit simple low-cost synthesis and high quality. Moreover, we developed the electrical properties of ZnO nanowires such as carrier mobility and electrical conductivity through plasma and thermal treatments.

J. Nanosci. Nanotechnol. 2011, Vol. 11, No. 15334880-





Well-Crystalline ZnO Nanowire Based Field Effect Transistors (FETs)

S.H. Kim, Ahmad Umar, S. W. Hwang, S. A. Al-Sayari, M. Abaker, and A. Al-Hajry
Najran University

Abstract:

Well-crystalline ZnO nanowires were grown on Si(100) via non-catalytic thermal evaporation process using metallic zinc powder in presence of oxygen. The detailed morphological characterizations by field emission scanning electron microscopy (FESEM) and transmission electron microscopy (TEM) confirmed that the synthesized products are nanowires with the typical diameter and lengths of $555 \pm$ nm and several micrometers, respectively and are grown in high density over the silicon substrate. The detailed structural characterizations by high-resolution TEM and X-ray diffraction confirmed that the synthesized nanowires are well-crystalline and possessing wurtzite hexagonal phase. The presence of Raman-active optical-phonon E_{high}^2 mode at 437 cm^{-1} in the Raman scattering spectrum confirms good crystal quality for the as-grown ZnO nanowires. The electrical transport properties of the as-grown nanowires were explored by fabricating single nanowire based field effect transistors (FETs). The fabricated single ZnO nanowire based FET exhibits carrier concentration and electron mobility of $7.49 \times 10^{17} \text{ cm}^{-3}$ and $8.42 \text{ cm}^2 \text{ V}^{-1} \text{ s}^{-1}$, respectively. *J. Nanosci. Nanotechnol.* 2011, Vol. 11, No. xx 1533006/001/11/2011/4880- doi:10.1166/jnn.2011.4744 1 RESEARCH ARTICLE Copyright © 2011 American Scientific Publishers All rights reserved Printed in the United States of America .

Journal of Nanoscience and Nanotechnology Vol. 11, 1–6, 2011





Synthesis and characterization of undoped/doped ZnO nanowires and their applications for high-performance nano-electric

SANG HOON KIM, SANG WOON HWANG

Najran University

Abstract:

Recently, many research groups have an effort in the area of wide band gap semiconductor materials due to their wide range of applications. Among them, ZnO is regarded as one of the promising candidates for high performance optoelectronic, electronic and sensor applications due to their wide band gap (3.37 eV), large exciton binding energy (60 meV), high electron velocity and high mechanical stability, and high surface-to-volume ratio. In particular, ZnO semiconducting materials that have been doped with transition metals are currently generating much research interest. Because metal-doped ZnO nanostructures have been investigated to determine the effects of transition metal incorporation into the lattice on electrical, optical, magnetic, and structural properties of ZnO. Moreover, the introduction of impurity atoms into ZnO semiconducting materials is the primary method for controlling the properties, such as band gap, mobility and electrical conductivity. Therefore, transition metal doping of ZnO nanowires are of great interest for nano-electronic devices applications, such as field effect transistors and p-n junction devices. In this research, we explore the possibility of fabricating transition metal-doped ZnO nanowires by thermal evaporation process. And we report the fabrication of nano-electronic devices using 1D undoped/doped ZnO nanowires using by conventional lithography and e-beam lithography method.

Citation: *AIP Conf. Proc. 1370, 142 (2011)*





Paediatric dose measurements for chest X-ray
examinations at Maternity and Children Hospital in
Najran - Saudi Arabia
M. K. Saeed and J. M. Al-Qahtani
Najran University

Abstract:

The entrance skin dose (ESD) of chest X-ray examinations for AP and PA projections of paediatric patients at Maternity and Children Hospital in Najran, Saudi Arabia have been obtained using DoseCal software. The majority of the results obtained show low measured ESD for chest X-ray examinations. The mean of ESD for the AP projection was found to be 37.5, 40.5, 41.3, and 52.3 μ Gy for age groups $0-10$, $1-5$, $1-10$, and >10 years respectively. However, the ESD for PA projection was found to be 50.7 and 56.7 μ Gy for age groups >10 , and >10 years respectively.

AustralasPhysEngSci MedDOI 10.1007/s132462-0128-012-





Effect of iron doping on the physical properties of europium manganites

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Najran University*

Abstract:

Polycrystalline samples of $\text{Eu}_{0.65}\text{Sr}_{0.35}\text{Fe}_x\text{Mn}_{1-x}\text{O}_3$ ($x = 0.1$ & 0.5) were prepared by asolid state reaction technique. Preliminary microstructure and crystal structure of the compound at room temperature were studied using field emission scanning electron microscope (FESEM) and X-ray diffraction (XRD) technique, respectively. It is found that with Fe doping, the grain size decreases, where the compound crystallizes in a single-phase orthorhombic structure. Both samples show three active Raman vibrational modes around 210, 488 and 610 cm^{-1} . The substitution of Fe at the Mn site results in a slightly change in band positions of Raman spectra. The temperature variation of resistivity shows that these compounds have semiconductor behavior with activation energy 0.152 eV for $x = 0.1$ increases to the value 0.535 eV for $x = 0.5$. The frequency dependence of dielectric constant in these materials indicates that space charge polarization contributes significantly to their observed dielectric parameters.

Journal of Alloys and Compounds





Bacterial Prevalence and Resistance to Antimicrobial Agents in Southwest, Saudi Arabia

Masoud, E.A., Mahdy, M.E and Esmat, A.M
Najran University

Abstract:

One hundred and eighty eight organisms were isolated from clinical specimens (71 isolates from urine, throat swabs (40), stool (39) pus (17), blood (14), wound swabs (7)) collected from laboratories of hospitals and polyclinics distributed in Najran Area, Saudi Arabia, between February 2010 to November 2011. Bacteria were identified by Gram staining and biochemical tests, and antibiotic sensitivities tested by the disc diffusion method at microbiology laboratory, Najran University. The most prevalent bacteria isolated were *E. coli* (35.63%) followed by *Klebsiella pneumoniae* (18.08%), *Staph. Aureus* (14.89%), *Salmonella* spp. (13.29%), *Pseudomonas aeruginosa* (6.91%), *Streptococcus pneumoniae* (5.31%), *Shigella* spp. (3.19%), *Enterococcus faecalis* (1.59%) and *Proteus mirabilis* (1.06%). The multi-drug resistance rates (MDR) among common isolates were *Pseudomonas aeruginosa* (38.46%) followed by *Klebsiella pneumoniae* (32.35%), *Staph. aureus* (32.14%) and *E. coli* (31.34%). The overall multi-drug resistance rate among isolates was high (28.72%).





DETERMINATION OF AFLATOXIN M1
CONCENTRATIONS IN FULL-FAT COW'S UHT MILK
SOLD FOR CONSUMPTION IN NAJHRAN-SAUDI
REGARDING ITS PUBLIC HEALTH SIGNIFICANCE*

*Medhat I.M. Abdallah, Mohamed S. Bazalou
and Mohamed Z. Al-Julaifi
Najran University*

Abstract:

This study aimed to evaluate the concentrations of aflatoxin M1 in full fat, cow's UHT milk solid in Najran-Saudi Arabia with regard to its public health significance. 96 samples of different brands full fat, cow's UHT milk were randomly punched from different supermarkets at Najran city during the period of September 2011 to January 2012. The samples were examined for AFM1 using the competitive enzyme-linked immunosorbent assay (ELISA), AFM1 residues were detected in 79 samples (82.30% of total). The minimum concentration was 0.01, the maximum concentration was 0.19 and the mean value was $0.058 \pm 0.0053 \text{ g/L}$. Data also indicated that AFM1 residues concentrations detected in all the positive samples were below the tolerated level of AFM1. So it could be concluded that contamination of AFM1 in dairy products marketed in Najran city does not appear to be serious public health problem at the moment.

Egypt. J. of Appl. Sci., 27 (3) 2012





Toxic and antifeedant activity of extracts, latex and flavonoids of *calotropisprocera* (Ait.) against two coleopteran stored-grain insects

Gomah Nenaah
Najran University

Abstract:

In the course of screening for natural products as biorational grain protectants, aqueous and solvent extracts were prepared from the leaves and flowers of *Calotropisprocera* (Ait.) (Gentianales: Asclepiadaceae). The latex protein (LP) and the flavonoids (FCp) of the plant were also isolated and purified. Their effects on survival and the feeding behavior of the rice weevil, *Sitophilusoryzae* L (Coleoptera: Curculionidae) and the lesser grain borer, *Rhyzoperthadominica* (F) (Coleoptera: Bostrichidae), two of the most harmful pests of stored grains were evaluated. All phytochemicals, especially the (FCp) and (LP) showed adulticidal activities against the test insects with *S. oryzae* was more susceptible than *R. dominica*. When adults of both insects were exposed to a dry film residue of these extracts, the flavonoid fraction (FCp) was the most toxic, followed by LP, methanol extracts of the leaves and flowers with LC_{50,s} of (36.1 and 47.6), (45.9 and 60.2), (58.3 and 69.00) and (73. 0 and 86.8) µg/cm² at 48 h post-treatment





against *S. oryzae* and *R. dominica*, respectively. All compounds were more toxic when insects were fed phytochemicals-treated grains, where LC₅₀s of FCp and LP reached (21.8 and 27.4) and (28.2 and 39.5) mg/kg grains at 48 h post-treatment against *R. dominica* and *S. oryzae*, respectively. In this case, the aqueous extracts of the leaves exhibited promising toxicity with LC₅₀s of 49.2 mg/kg grains against *S. oryzae*. Nutritional studies using the flour disc bioassay and sub-lethal doses of the test products revealed significant reduction in the growth rate (RGR), food consumption rate (RCR) and food utilization (ECI) by both insects with feeding deterrent indices (FDI) reached (86.4 and 74.5) % with the FCp against *S. oryzae* and *R. dominica*, respectively. The study recommends the use of such phytochemicals as natural leads to protect stored grains from insect infestation.

Journal of stored Product





The Effectiveness of Gifted Center as Perceived by Gifted Students in Najran, K.S.A

*SuhailMahmod Al-Zoubi , MajdoleenBani Abdel Rahman
Najran University*

Abstract:

The study aimed at investigating the level of the effectiveness of gifted center as Perceived by gifted students. The sample of this study consisted of)*+,- male and female students study at gi.ed center in Najran, K.S.A. The researchers developed effectiveness scale distributed onto four domains: center administration, teachers, enrichment activities and characteristics of center. The results revealed that the Gifted Center in Najran is effective. Whereas, the most mean of effectiveness was for teachers, followed by the center administration, characteristics of center, and enrichment activities. On the other hand, the results of the) ANOVA- showed that there are no statistically significance differences due to gender and education levels or to interaction between the gender and education levels.) keywords: effectiveness, gifted center, giftedness-.

المجلة العربية لتطوير التفوق
العدد (2) - 2011م





Developing Writing Skills: A Practical Remedy of Common Writing Problems among Students of Writing Skills Coursesat Preparatory Year, Najran University KSA

MohdNazim , Jalal Ahmad
Najran University

Abstract:

Teaching and/or developing writing skills has always been a pain for both teachers and learners in an EFL classroom situation. In this project an in-depth effort will be made to investigate the challenges (faced by the teachers as well as learners) in teaching and developing writing skills based on live classroom teaching experience. An analysis and review of sample writing attempts of the students will also be done to examine and offer the remedies and suggestions in order to minimize the problems of conventions, punctuation, capitalization, spelling, and some of the basics of language use (grammar).

Language in India – ISSN 1930





A Critical Study of Comprehension Strategies and General Problems in Reading Skill Faced by Arab EFL Learners with Special ReferencetNajran University in Saudi Arabia

Syed Raihan Ahmed Nezami
Najran University

Abstract:

There is a general assumption in regard of reading skill; it is supposed to be one of the easiest of the four skills i.e. listening, speaking, reading and writing for a beginner and the university students as well that is proved untrue by the researcher (Lebaure 1985). The reading skill of the EFL learners (English as Foreign Language) requires a sufficient knowledge of vocabulary of English language, the adeptness in scanning and skimming ability; reading speed and power of comprehension are also equally important. In general, the EFL learners in Saudi Arabia lack in proficiency in predicting the meaning in a particular context and summarizing the gist of the passage. The reading comprehension can be done through two ways – extensive way and intensive way at junior level. In the researcher's opinion, the extensive way with some features of intensive teaching like rigorous computer assisted practice is more fruitful for students for a particular purpose. It is directly related with the classroom teaching that is the centre of attention of my research. The aim of this project is to find out the reading problems inside classroom, so it will throw some light on comprehension problems in reading skill faced by the Arab learners in general and the students of Preparatory Year (boys) and Community College (boys) of Najran University in particular. In general, the difficulty is felt in different areas such as use of vocabulary, scanning, skimming, prediction and summarizing in the process of comprehension of English language by Arab learners (boys) in Najran University.

International J. Soc. Sci. & Education





A STUDY OF THE DIFFICULTIES AND POSSIBLE REMEDIES OF THE WRITING SKILL AMONG THE STUDENTS OF PREPARATORY YEAR, NAJRAN UNIVERSITY: TEFL IN THE CONTEXT

*Mohammad Owais Khan , Irshad Ahmad Khan
Najran University*

Abstract:

Writing has always been a matter of concern for Arab students. There are several studies conducted by Arab and other scholars in the said field. Works done by scholars which focus on how writing skill can be developed; they suggested some of the models which are of high intensity and very few of them provide the root cause of the problem. The feeling and observation that have been set through years of teaching experience that students in this region are lacking of English writing opportunities i.e. students do not get adequate writing opportunities to write during their secondary classes. The assumption that this gap may be filled by giving them more practical exposure in writing so that the learners will be able to prove themselves as future proficient writers. This study aims to check/assess the present status in writing through different assessment tests and evaluations, then, enhance/develop the respective skill through different drills and teaching hours according to their need after first assessment phase.

Language in India – ISSN 19





Improvement of gait in parkinsonian patients by reactive neuromuscular training

***Yasser Ibrahim Seada , Farouk Farouk Ahmad Yousif
and Mohamad saied Tawfik
Najran University.***

Abstract:

This study was done to investigate the influence of reactive neuromuscular training on gait of Parkinsonian patients. A total subject of thirty Parkinsonian patients of both sexes, aging from 50-77 years and weighting 60-90-Kg were chosen in our study. The patients were randomly divided into two equal groups. Group I (G1) was the control group managed by traditional physical therapy program (stretching, strengthening, balancing and weight shifting exercises) while patients in Group II (the target experimental group), were managed by Biodex Multi-Joint System for reactive neuromuscular training in addition to the same exercise therapy program for G1. In all patients this therapy training program was done for 40 minutes, 3 days per week day after day for 2 months. The vital signs for all patients were detected along the course of managed program. In the two groups studied, all patients reactions were assessed by Biodex Multi-Joint System for reactive neuromuscular training, balance was assessed by Biodex Balance system SD motion analysis system, gait was assessed by Unified Parkinson Disorder Rating Scale (UPDRS), step length and velocity were assessed by motion analysis system and muscle activity for rectus abdominus and erector spinae muscles were assessed by electromyography before and after the last sessions. Our results showed significant changes and improvement in group II in all parameters assessed regarding to all clinical and electromyographic parameters.





AUTOMATIC CLASSIFICATION OF QUESTIONS INTO BLOOM'S COGNITIVE LEVELS USING SUPPORT VECTOR MACHINES

Anwar Ali Yahya , Addin Osman
Najran University

Abstract:

In recent years, E-learning has increasingly become a promising technology in educational institutions. Among numerous components of E-learning systems, question bank is a primordial component. Question bank is a repository of questions that assists students and instructors in the educational process. In question bank, questions are annotated, stored and retrieved based on predefined criteria such as Bloom's cognitive levels. Definitely, for question bank management, the automatic classification of questions according to Bloom's cognitive levels is of particular benefit. This paper explores the effectiveness of support vector machines (SVMs), in tackling the problem of question classification into Bloom's cognitive levels. To do so, a dataset of pre-classified questions has been collected. Each question is processed through removal of punctuations and stop words, tokenization, stemming, term weighting and length normalization. SVM classifiers, namely linear kernel, have been built and evaluated on approximately 70% and 30% of the dataset respectively, using SVM-Light software package. The obtained preliminary results show a satisfactory effectiveness of SVMs with respect to classification accuracy and precision. However, due to the small size of the current dataset, the results of the classifiers' recall and F-measure suggest a need for further experiments with larger dataset to obtain conclusive results.

The 12th international Arab conference information technology Naif Arab University for security sciences 1114- December 2011.





Problems of Spelling in Common English Learners of Saudi Arabia and Strategies for Improvement: A Case Study in Preparatory Year College, Najran University, KSA

Irshad Ahmad Khan , Bilal Ahmad Itoo
Najran University

Abstract:

Learning and teaching of foreign language is a challenging task and the task is learnt through skills of language i.e. writing, listening/speaking, and reading with the help of the rules of grammar. The problems to spell the words in English for FLL (foreign language learner) lie behind lack of learning these skills and practicing it. The purpose of this study is to review the literature on spelling problems and try to find out strategically specific point of solution that can help our student of CPY. Moreover, that one point problem solving factor should cover a wider range of solutions of Preparatory year college English language learners, Najran University, Najran, KSA or in a wider sense; Arab EFL learners. The study aims to know the reasons that lie behind these problems among the students of CPY. In other words, we can say that the aim of this study is to search and adapt the practice that can help our students to improve the spellings while they write in classes or in exams.

Language in India an International Journal





Development of an ICT-based layer model for improving managerial decision making on water issues in arid and semi-arid regions

*Ali AL-HAMDII, Muhammad AKRAM and Ahmed Monjurul HASANI
Najran University*

Abstract:

Fresh water is an essential element for human survival and land-based life forms. Right quantity and quality of freshwater is a fundamental element for human continued existence and land-based life forms. About 97% of earth water is salt water and from remaining 3% only 0.4% fresh water is available for human use. Many countries of the world are facing problem of inadequate drinking water supply, management of wastewater and basic sanitation. About more than one billion peoples did not have access to the safe water and two billions are lack of safe sanitation. This is a constant challenge for several regions of the world. Effective water management is very important to overcome the water problems. Nevertheless, with the use of Information & communication technology (ICT) techniques, this situation can be improved. In this research paper we have discussed the essential factors that effects on different water issues in arid and semi-arid regions, moreover these water problems are classified into structured, semi-structures and unstructured. To improve the managerial decision making on water challenges; we also have proposed an ICT based layer model with consideration on operations, operational management, tactical management and strategic management.

International Journal of Computer and Information Technology (ISSN: 2279 – 0764) Volume 01– Issue 02, November 2012.





A Study of Effective Implementation of E-Learning in Higher Education with Special Reference to Najran University.

Farooqui Waseemuddin, Mirza Anwarullah Baig
Najran University

Abstract:

This study is an attempt to evaluate an effective implementation of E-Learning program in Najran University. It stresses to identify the weaknesses of the system from different aspects like end users understanding the technology, sources available through E-Learning program, Analysis of student's performance, Training and technical support for the users, Studio for recording lecturer clips. It also focuses to find out whether the E-Learning program meets the learners requirements.

International journal of English and education (IJEE)





Violence between Spouses: A Field Study
From the point of view of faculty members at the
University of Najran

Mohammed Bin Abdullah Hussein Al-Hazimy
Najran University

Abstract:

This study aims to identify reasons for domestic violence between spouses and relevant alleviation mechanisms from the perspective of academic staff members at Najran University, KSA. In order to accomplish his study goals, the researcher designed a survey questionnaire divided into two major dimensions tackling reasons and alleviation mechanisms for domestic violence between spouses respectively. The research sample comprised 70 academic staff members of both genders affiliated to the university's Sharia and Education Colleges during the (1432-1433) AH academic year. Notably, the researcher employed mean scores, standard deviations and T-test in his sample statistical data analysis.





VThe Effect ofResource Room on Improving Reading and Arithmetic Skills for Learners with Learning Disabilities

*Suhail Mahmoud Al-Zoubi , Majdoleen Sultan Bani Abdel Rahman
Najran University*

Abstract:

This study aimed at measuring the effect of resource room on improving reading and arithmetic skills for learners with learning disabilities. The sample consists of (60) students nominated to joining the resource room in Najran, Kingdom of Saudi Arabia. The students are equally divided into two groups, control and experimental, with (30) students in each group. The experimental group joined the resource room; however, the control group received their education in a regular class. The results revealed that there are statistically significant differences in favor of the experimental group members; however, no statistically significant differences that could be attributed to gender.

International Journal of Scientific Research in Education (IJSRE), ISSN: 11173259-





**Rotavirus and adenovirus
in human and animals in Southwest of Saudi Arabia**
*Abuelyazeed A. Elsheik , Walid A. Azab , Abdulrahman M Al-Qurashi and
Shimaa M.G. Mansour*
Najran University

Abstract:

Enteric viruses are important agents threaten both human and animal health. These viruses are usually transmitted via the fecal-oral route and are shed in extremely high numbers in the feces of infected individuals. This study was carried out to determine the prevalence of rotavirus and adenovirus infections among humans and animals in Najran region (a province located at the southwest of Saudi Arabia) and to identify the source of infection. A total of 92 and 88 stool samples were collected from children and lambs suffering from diarrhea, respectively. All stool samples were tested with two antigen detection techniques; (ELISA) and RIDA QUICK Rotavirus/Adenovirus Combi for detection of rotavirus and adenovirus. The positive results were further confirmed by PCR. To identify the source of infection, five potable water samples were tested for both viruses by PCR technique. In children, the results showed that 8 samples were positive for rotavirus (8.69%), while 3 samples were positive for adenovirus (3.26%). In lambs, there were 4 positive samples for rotavirus (4.54%) while the adenovirus could not be detected in any of the samples. The viruses could not be detected in any water sample. This is the first study that shows the presence of enteric viruses in humans and animals in Najran and further investigations are needed to identify the source of infection.

Journal of American of Science,2012;8(x)





Growth of In-Doped ZnO Hollow Spheres Composed of Nanosheets Networks and Nanocones: Structural and Optical Properties

S. H. Kim, G. N. Dar, and Ahmad Umar
Najran University,

Abstract:

This work reports the facile growth and characterizations of In-doped ZnO hollow spheres composed of nanosheets networks and nanocones. The In-doped ZnO hollow spheres composed of nanosheets networks and nanocones were grown on Si (100) substrate by simple and non-catalytic thermal evaporation process using metallic zinc and indium powders in the presence of oxygen. The prepared materials were examined in terms of their morphological, compositional, structural and optical properties. The detailed morphological studies revealed that the synthesized products are hollow spheres composed of nanosheet networks and nanocones and grown in high-density. The observed structural properties exhibited well-crystallinity and wurtzite hexagonal phase for the grown materials. The room-temperature photoluminescence (PL) spectrum showed a broad band in the visible region with a suppressed UV emission and hence due the enhancement in the green emission, the prepared materials exhibits a great interest in the area of ZnO phosphors, such as field emissive display technology, etc.

Journal of Nanoscience and Nanotechnology

Vol. 13, 1–6, 2013





The effects of informal use of computermediatedcommunication on EFL learner interaction

*Hassan Saleh Mahdi
Najran University,*

Abstract:

The study adopted an experimental approach to investigate the impact of informal use of computer-mediated communication (CMC) on English as a Foreign Language(EFL) learner's interaction. CMC is an umbrella term which refers to human communication via computer either synchronously or asynchronously. It can be implemented in two ways either formally or informally. Informal use of CMC in this study means unevaluated and unplanned activities which can occur outside the classroom, and can be initiated by the students. This study sought to examine: (a) if the learners participate actively in informal CMC; (b) the factors that help informal CMC to be a successful experience; and (c) the impact of CMC on comprehensible written output. The participants were fifty adult EFL Saudi learners at Najran University, Saudi Arabia. The study utilized a homepage on Facebook as a research tool. Data collection was done through a questionnaire and an interview. The participants' exchanges in the Facebook group and their replies to the questionnaire were analyzed. The results of the study revealed that informal use of CMC can be affected by many factors. The voluntary nature of learner participation, busy schedules, and the teacher interference were some of these factors. The results showed that the participants had positive attitudes towards using CMC to improve their language.

Canadian Academy of Oriental and Occidental Cultur





Toxicity and growth inhibitory activities of methanol extract and the carboline alkaloids of *Peganum harmala* L. against two coleopteran stored-grain pests

Gomah Nenaah
Najran University

Abstract:

Methanol extract and the β -carboline alkaloids were extracted from the seeds of *Peganum harmala* L (Zygophyllaceae). Their toxicity, growth inhibitory and effects on the progeny production of *Tribolium castaneum* (Herbst) (Coleoptera: Tenebrionidae) and *Rhyzoperth dominica* (F) (Coleoptera: Bostrichidae) was studied. To assess any additive effects among the extracted β -carboline, they were tested as binary mixtures (1:1) or as a crude alkaloid fraction. All extracts exhibited a considerable adulticidal effect with increasing activities in response to increased exposure period. Using the contact toxicity bioassay, the crude β -carboline fraction was the most effective (LC₅₀'s were 20.1 and 36.7) $\mu\text{g}/\text{cm}^2$, 48 h post-treatment against *R. dominica* and *T. castaneum*, respectively. LC₅₀'s of (harmaline+harmine), (harmaline+harmene), and methanol extract were (31.2, 39.4), (33.7, 47.2), and (39.8, 65.2) $\mu\text{g}/\text{cm}^2$, 24 h post treatment against *R. dominica* and *T. castaneum*, respectively. At 48 h post-treatment, LC₅₀ of (harmaline+harmine) reached 22.4 $\mu\text{g}/\text{cm}^2$ against *R. dominica*. When mixed with the insect's diets, toxicity of all extracts were increased





with the crude alkaloidal fraction the most toxic (LC50's were 7.8 and 14.7) mg/kg grains, 48 h post exposure against *R. dominica* and *T. castaneum*, respectively. When the 2nd instar larvae were fed sublethal doses-treated grains, development and F1 progeny of both insects were significantly affected ($P \leq 0.001$). At 3.5 mg/kg grains of the crude alkaloidal extract, percentages of malformed larvae and pupae of *T. castaneum* were 19.7 and 33.4 %, respectively. In this case, a total life span of 81.3 days was recorded for the treated individuals compared to 44.2 for the control. A reduction in the adult progeny of 56.9, 44.0 and 43.6% was obtained with 3.5 mg/kg of the crude alkaloids, (harmaline+harmine) and methanol extract, respectively. Meanwhile, the reduction in adult progeny of *R. dominica* reached 79.2 % with the same concentration of the crude alkaloid extract.

Journal of Stored Products Research 47 (2011) 255261-.





Growth, structural and optical properties of well-crystalline Al-doped ZnO nanowire and their based field effect transistor (FET)

*S. H. Kim , Ahmad Umar , S. H. Al-Heniti and A. Al-Hajry
Najran University*

Abstract:

Well-crystallized Al-doped ZnO nanowires were synthesized in large quantity on silicon substrate by using metallic zinc and aluminum powders in the presence of oxygen. The synthesized nanowires were examined in terms of their morphological, structural and optical properties. The detailed morphological and structural properties reveal that the synthesized products are nanowires, grown in high density and possessing well crystalline structures. The optical property of as-synthesized Al-doped ZnO nanowires was examined by room-temperature photoluminescence (PL) spectroscopy which shows a broad band in the visible region with a suppressed UV emission. The origination of broad visible emission could be correlated with the presence of structural defects due to insertion of Al-atoms in the lattices of as-grown nanowires. The electrical properties of as-synthesized Al-doped ZnO nanowires were explored by fabricating single nanowire based field effect transistors (FETs). The fabricated single Al-doped ZnO nanowire based FET exhibits carrier concentration and electron mobility of $\sim 4.80 \times 10^{17} \text{ cm}^{-3}$ and $\sim 25.02 \text{ cm}^2 \text{ V}^{-1} \text{ s}^{-1}$, respectively.

Science of Advanced Materials 3, 7192011) 724-)





Highly sensitive Hydrazine Chemical Sensor Based on Mono-Dispersed Rapidly Synthesized PEG-coated ZnS Nanoparticles

*Surinder K Mehta , Khushboo and Ahmad Umar
Najran University*

Abstract:

Monodispersed PEG-coated ZnS (P-ZnS) nanoparticles (NPs) were synthesized by facile microwave process and utilized as efficient electron mediators for the fabrication of highly sensitive hydrazine chemical sensor. The detailed morphological and structural properties revealed the monodispersity and good crystallinity for synthesized P-ZnS NPs. A high-sensitivity of $\sim 89.3 \mu\text{A}/\text{cm}^2 \square \text{M}$ and low limit of detection of $1.07 \mu\text{M}$, based on S/N ratio, were obtained for the fabrication of hydrazine chemical sensor based on P-ZnS NPs. To the best of our knowledge, this is the first report which demonstrates the utilization of P-ZnS NPs for the fabrication of efficient hydrazine chemical sensor. By this work, it could be concluded that simply synthesized ZnS NPs can be used as efficient electron mediators for the fabrication of effective hydrazine chemical sensors.

Talanta 85, 24112011) 2416-)





Low-temperature growth of well-crystalline Co₃O₄ hexagonal nanodisks as anode material for lithium-ion batteries

*S. W. Hwang , Ahmad Umar, S. H. Kim , S. A. Al-Sayari¹, M. Abaker, A. Al-Hajry and A.Manuel Stephan
Najran University*

Abstract:

Uniform hexagonal-shaped cobalt oxide (Co₃O₄) nanodisks were prepared in large scale via facile aqueous solution based hydrothermal process at 110°C. The detailed structural characterizations confirmed that the synthesized products are hexagonal cobalt oxide nanodisks, possessing very well-crystalline cubic spinel structure. A coin cell of type -2032 was assembled using the synthesized Co₃O₄ nanodisks and its charge- discharge profile was analyzed between the voltages 0.01 and to 2.5 V vs Li/Li⁺ reference electrode. The electrochemical cell composed of Li/Co₃O₄ delivered an initial lithium insertion capacity of 2039mAh/g. Although the cell exhibited high irreversible capacity during the first four cycles, the columbic efficiency has been improved upon cycling.

ElectrochimicaActa 56, 85342011) 8538-)





High-Yield Synthesis of Well-Crystalline α -Fe₂O₃ Nanoparticles: Structural, Optical and Photocatalytic Properties

*Ahmad Umar, M. Abaker, M. Faiza, S. W. Hwang and S. Baskoutas
Najran University*

Abstract:

In this paper, we report the high-yield facile synthesis, detailed characterization and photocatalytic application of α -Fe₂O₃ nanoparticles. The synthesis was done via simple hydrothermal process by using aqueous mixtures of iron chloride, hexamethylenediamine and NH₃.H₂O at low temperature of 110 °C. The morphologies of the synthesized products were examined by using field emission scanning electron microscopy (FESEM) and transmission electron microscopy (TEM) which confirmed that the synthesized structures are almost spherical shaped nanoparticles with the average diameters of $\sim 35 \pm 5$ nm, and are grown in high yield. The detailed structural characterizations and composition of the as-synthesized nanoparticles were investigated by using X-ray diffraction (XRD), high-resolution TEM (HRTEM), energy dispersive spectroscopy (EDS) attached with FESEM and Fourier transform infrared spectroscopy (FTIR) which substantiated that the as-synthesized nanoparticles are well crystalline and pure α -Fe₂O₃. The UV-Vis absorption spectrum of the synthesized nanoparticles demonstrated the existence of two optical band gaps which correspond to direct and indirect transitions, respectively. The as-synthesized α -Fe₂O₃ nanoparticles exhibit good photocatalytic properties on photocatalytic degradation of methylene blue.

Journal of Nanoscience and Nanotechnology 11, 34742011) 3480-)





A Convenient and Simple Approach for the Fabrication of High-Sensitive Non-Enzymatic Glucose biosensor based on ZnO Nanorods

G. N. Dar, Ahmad Umar, Shabi Abbas Zaidi, S. Baskoutas, S. H. Kim, M. Abaker, A. Al-Hajry and S. A. Al-Sayari
Najran University

Abstract:

In this paper, a convenient and reliable approach has been presented for the fabrication of efficient and high-sensitive non-enzymatic glucose sensor by using well-crystalline ZnO nanorods as effective electron mediator. ZnO nanorods were synthesized by hydrothermal process at low-temperature using simply available laboratory chemicals i.e. zinc nitrate and sodium hydroxide. The detailed morphological study by field emission electron microscopy (FE-SEM) reveals that the synthesized nanorods are grown in high density. The as-synthesized nanorods are well-crystalline and possessing wurtzite hexagonal phase as confirmed by detailed structural characterizations using X-ray diffraction (XRD) and high-resolution transmission electron microscopy (HR-TEM). Fourier transform infrared (FT-IR) substantiated that the synthesized nanorods are pure ZnO. The fabricated non-enzymatic glucose biosensor based on ZnO nanorods exhibits high sensitivity of $\sim 5.601 \pm 0.02 \mu\text{A cm}^{-2} \text{ mM}^{-1}$, detection limit of $\sim 0.5 \mu\text{M}$ with a correlation coefficient (R) of 0.97531 and response time of 10 s. This research opens a way that simply synthesized ZnO nanomaterials could be used as efficient electron mediators for the fabrication of efficient non-enzymatic glucose biosensors.

Sci. Adv. Mat. 3, 12011) 7-





Urea sensing properties of Cu-doped Titanate nanostructure

Z.A. Ansaria, Mazhar-ul-Haquea, Hyung-KeeSeob, Ahmad Umara, Ali Al-Hajryc, S. A. Al-Sayari,cHyung-ShikShind and S.G. Ansaria
UniversityNajran

Abstract:

This paper presents the urea sensing properties of Cu-doped titanate nanostructure. Cu-doped nanomaterial was prepared using hydrothermal method at 150°C for 48 hours followed by calcination at 350°C. Thick films were deposited using screen printing technique on electropolished aluminum substrates. Morphological changes occurred from particle to mixed structure of particle and flakes during hydrothermal process. Urease was immobilized on the films by soaking in urease solution (100 units) for 5 h which is covalently attached on the surface. In general, conductivity of film increased after urease immobilization as observed in the buffer solution. The conduction linearly increases over the wide range of urea concentration i.e. 1mM to 500 mM. Urease immobilization was confirmed from IR spectroscopy analysis of the films giving additional peaks.

Advanced Science Letter 4, 34512011) 3457-)





Growth of $\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3$ Thin-Films on SrTiO_3 (100) substrate by Pulsed Laser Deposition: Structural, Optical and Electrical Properties

A. A. Alharbi, M. Alkahtani, Ahmad Umar, O. Al-Dossary and M. M. Abdullah
Najran University

Abstract:

This paper reports the growth and properties of $\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3$ (LSMO) thin films on SrTiO_3 (100) perovskite single crystal substrates via pulsed laser deposition (PLD) process using Kr: F ($\lambda = 248 \text{ nm}$) laser line as an exciton source. The SrTiO_3 (100) perovskite single crystal was used as substrate due to its good lattice matching with the deposited thin films ($\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3$). The LSMO thin films were deposited at without oxygen pressure and other two different oxygen pressures, i.e. at 100 mTorr and at 300 mTorr oxygen pressures. For the deposition of thin films, the target material was prepared by mixing and sintering the exact amounts of manganese oxide (Mn_2O_3), strontium oxide (SrCO_3) and lanthanum oxide (La_2O_3). Finally, a sintered pellet of $\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3$ was used as a target for the deposition of the thin films. The as-grown LSMO thin films were characterized in terms of their structural, optical and electrical properties.

Advanced Science Letter 4, 34752011) 3479-





Well-Crystalline α -Fe₂O₃ Nanoparticles for Hydrazine Chemical Sensor Application

*S. K. Mehta , Kulvinder Singh , Ahmad Umar, G. R. Chaudhary and Sukhjinder Singh
Najran University*

Abstract:

This paper reports a facile synthesis, characterization and hydrazine chemical sensor applications of α -Fe₂O₃ nanoparticles (NPs). The α -Fe₂O₃ nanoparticles were synthesized by simple hydrothermal process at low-temperature of 130°C and characterized in detail in terms of their morphological, structural and compositional properties. The detailed characterizations revealed that the as-synthesized nanoparticles are well crystalline and possessing rhombohedral α -Fe₂O₃ structure. The as-synthesized α -Fe₂O₃ nanoparticles were used as efficient electron mediators for the fabrication of hydrazine chemical sensor which exhibits high sensitivity and low-detection limit. The obtained sensitivity and detection limit of the fabricated chemical sensor was found to be $\sim 1.59 \mu\text{A}/\text{cm}^2 \mu\text{M}$ and $3.84 \mu\text{M}$, respectively. Importantly, to the best of our knowledge, this is the first report in which α -Fe₂O₃ was used as an electron mediator for the fabrication of amperometric chemical sensor. Therefore, this work shows that simply synthesized α -Fe₂O₃ can be used for the fabrication of robust hydrazine chemical sensors.

Sci. Adv. Mater. 3, 9622011) 967-)





Well-crystalline ZnO nanowire based field effect transistors (FETs)

S. H. Kim, Ahmad Umar , S. W. Hwang, S. A. Al-Sayari, M. Abaker and A. Al-Hajry
Najran University

Abstract:

Well-crystalline ZnO nanowires were grown on Si(100) via non-catalytic thermal evaporation process using metallic zinc powder in presence of oxygen. The detailed morphological characterizations by field emission scanning electron microscopy (FESEM) and transmission electron microscopy (TEM) confirmed that the synthesized products are nanowires with the typical diameter and lengths of $\sim 55 \pm 5$ nm and several micrometers, respectively and are grown in high density over the silicon substrate. The detailed structural characterizations by high-resolution TEM and X-ray diffraction confirmed that the synthesized nanowires are well-crystalline and possessing wurtzite hexagonal phase. The presence of Raman-active optical-phonon E₂high mode at 437 cm⁻¹ in the Raman-scattering spectrum confirms good crystal quality for the as-grown ZnO nanowires. The electrical transport properties of the as-grown nanowires were explored by fabricating single nanowire based field effect transistors (FETs). The fabricated single ZnO nanowire based FET exhibits carrier concentration and electron mobility of $\sim 7.49 \times 10^{17}$ cm⁻³ and ~ 8.42 cm²V⁻¹s⁻¹, respectively.

Journal of Nanoscience and Nanotechnology 11, 51022011) 5107-)





Growth, Properties and Dye-Sensitized Solar Cells (DSSCs) Applications of ZnO Nanocones and Small Nanorods

Ahmad Umar , M. S. Akhtar, S. H. Kim , A. Al-Hajry, M. S. Chauhan and S. Chauhan
Najran University

Abstract:

Crystalline ZnO nanocones (NCs) and small nanorods (SNRs) were synthesized via facile aqueous solution process at low-temperature of 80 ± 5 °C. The synthesized ZnO nanostructures were characterized in detail in terms of their morphological, structural, optical and photovoltaic properties. The morphological investigations of as-synthesized nanostructures were performed by field emission scanning electron microscopy (FESEM) and transmission electron microscopy (TEM) which confirms the formation of ZnO nanocones and nanorods in large quantity. The structural and compositional properties of as-synthesized ZnO nanostructures were evaluated by X-ray diffraction (XRD) pattern, energy dispersive spectroscopy (EDS), Fourier transform infrared (FTIR) spectroscopy and Raman-scattering spectroscopy techniques. The studies reveal the well-defined crystallinity and pure phase ZnO for as-grown nanostructures. UV-Vis spectroscopy was used to determine the optical properties of as-





synthesized ZnO nanostructures. The as-synthesized ZnO NCs and SNRs were used as anode materials for the fabrication of dye-sensitized solar cells (DSSCs). The fabricated DSSCs using ZnO NCs and SNRs exhibited overall light-to-electricity conversion efficiencies of $\sim 0.91\%$ and 0.64% , open-circuit currents (VOC) of 0.703 V and 0.650 V , short-circuit currents (JSC) of $\sim 2.29\text{ mA/cm}^2$ and $\sim 1.46\text{ mA/cm}^2$ and fill factors (FF) of 0.55 and 0.67 , respectively.

Science of Advanced Materials 3, 6952011) 701-





Utilization of CuO Layered Hexagonal Disks for Room-Temperature Aqueous Ammonia Sensing Application

*M. Abaker , S. A. Al-Sayari¹, S. Baskoutas , Mohammed M. Rahman , A. Al-Hajry
S. H. Kim¹, S. W. Hwang and Ahmad Umar
Najran University*

Abstract:

In this paper, CuO layered hexagonal disks based ammonium hydroxide chemical sensor has been fabricated which demonstrated good sensitivity and detection limit. The CuO layered hexagonal disks were synthesized in large quantity via facile hydrothermal process at low-temperature of 130 °C and characterized in detail in terms of their structural and optical properties [1]. The detailed structural and optical properties of as-synthesized CuO layered hexagonal disks confirmed the good crystallinity with monoclinic structure and good optical properties for synthesized products [1]. The fabricated ammonium hydroxide chemical sensor based on CuO layered hexagonal disks demonstrate a good sensitivity of $0.07166 \mu\text{A cm}^{-2} \text{mM}^{-1}$, detection limit = $1.333 \mu\text{M}$, response time less than 10 s, linear dynamic range (LDR) from $5.0 \mu\text{M}$ to 5.0mM . This study reveals that simply synthesized CuO materials can be efficiently as an electron mediator to fabricate efficient chemical sensors

AIP Conf. Proc. 1370, 97 (2011); doi: 10.1063.1.3638088/





Growth and photocatalytic properties of Sb-doped ZnO nanoneedles by hydrothermal process

M. Abaker, Ahmad Umar, S. A. Al-Sayari, G. N. Dar, M. Faisal, S. H. Kim and S. W. Hwang
Najran University

Abstract:

This paper reports a facile hydrothermal synthesis of Sb-doped ZnO nanoneedles by using aqueous mixtures of zinc chloride, antimony (Sb) chloride, hexamethylenetetramine (HMTA) and ammonium hydroxide at low temperature of 110 °C. The morphological characterizations of as-synthesized nanoneedles were done by field emission scanning electron microscopy (FESEM) which reveals that the nanoneedles are grown in large-quantity and arranged in such a special manner that they made flower-like morphologies. The structural characterization of as-synthesized nanoneedles was investigated by X-ray diffraction (XRD) pattern which confirm the well-crystalline and wurtzite hexagonal phase of as-synthesized products. The compositional characterization of as-synthesized nanoneedles was characterized by energy dispersive spectroscopy (EDS), which verify that the synthesized nanoneedles are composed of zinc, Sb and oxygen. For application point of view, the synthesized nanoneedles were used as photocatalyst for photocatalytic degradation of methylene blue (MBB) and it was found that it exhibit good photocatalytic properties towards the photocatalytic degradation of methylene blue

AIP Conf. Proc. 1370, 121 (2011); doi: 10.1063/1.363809/





Growth of branched In-doped ZnO nanowires: Structural and Optical Properties

S. H. Kim, Ahmad Umar, S. W. Hwang, H. Al-Garni, M. Abaker, S. A. Al-Sayari, G. N. Dar and A. Al-Hajry
Najran University

Abstract:

Well-crystallized branched Indium (In)-doped ZnO nanowires were grown on silicon substrate via simple thermal evaporation process by using metallic zinc and indium powders in the presence of oxygen. The as-grown branched nanowires were examined in terms of their morphological, structural and optical properties using field emission scanning electron microscopy (FESEM) attached with energy dispersive spectroscopy (EDS), X-ray diffraction and room-temperature photoluminescence (PL) spectroscopy. The morphological and structural characterizations confirmed that the as-grown products are branched nanowires, grown in high-density and possessing well-crystalline structures. The room-temperature photoluminescence (PL) spectrum exhibited a very small UV emission and a broad band in the visible region indicating the presence of structural defects due to insertion of In-atoms in the lattices of as-grown nanowires. The presence of a strong green emission in the room-temperature PL spectrum demonstrates that these structures can be used for specific applications of ZnO-based phosphors, such as field emissive display technology, etc.

AIP Conf. Proc. 1370, 142 (2011); doi: 10.1063.1.3638095/





Large-scale synthesis of ZnO balls made of fluffy thin nanosheets by simple solution process: Structural, Optical and Photocatalytic properties

*Ahmad Umar , R. Kumar , M. S. Chauhan , S. Chauhan, G. Kumar, M. Faisal and S. W. Hwang
Najran University*

Abstract:

This paper reports a large-scale synthesis of ZnO balls made of fluffy thin ZnOnanosheets by simple solution process at low-temperature of 65 ± 2 °C. The synthesized ZnO structures were characterized in detail in terms of their morphological, structural, optical and photocatalytic properties. The morphological and structural examinations were done by using field emission scanning electron microscopy (FESEM) attached with energy dispersive spectroscopy (EDS), transmission electron microscopy (TEM) combined with high-resolution TEM (HRTEM), X-ray diffraction (XRD) pattern and Fourier transform infrared spectroscopy (FTIR) measurements. The detailed morphological characterizations confirmed that the synthesized products are ZnO balls which are made by accumulation of hundreds of thin ZnOnanosheets. Interestingly, it is seen that the nanosheets are arranged in such a special fashion that they made ball-like morphologies. Detailed structural examinations revealed that of as-synthesized ZnO products are





well-crystalline and possessing wurtzite hexagonal phase. The optical property, measured by UV-Visible spectroscopy, substantiated good optical properties for as-synthesized ZnO balls. The as-synthesized ZnO balls were utilized as an efficient photocatalysts for the photocatalytic degradation of methylene blue (MB) dye. Almost complete degradation of MB was observed in presence of ZnO balls composed of nanosheets within 70 minute under UV-light irradiation. By comparing the photocatalytic performance with commercially available TiO₂-UV-100, it was observed that the synthesized ZnO balls exhibited superior photocatalytic performance as compared to TiO₂-UV-100 photocatalyst.

Journal of Colloidal and Interface Science 363, 5212011) 528-)





Structural and Optical Properties of CuO Layered Hexagonal Disks Synthesized by Low-Temperature Hydrothermal Process

*M. Abaker , Ahmad Umar , S. Baskoutas , S. H. Kim¹ and S. W. Hwang
Najran University*

Abstract:

Layered hexagonal disks of CuO were synthesized on a large scale via low-temperature hydrothermal growth process at 130 °C by using copper nitrate, hexamethylenediamine (HMDA) and NH₄OH. The detailed morphological investigations by field emission scanning electron microscopy (FESEM) and transmission electron microscopy (TEM) clearly revealed that the synthesized CuO structures are made by the well layer-by-layer accumulation of several sheets which arranged themselves in such a special fashion that they exhibit the hexagonal disks of CuO. The detailed structural characterizations of the hexagonal CuO disks were done by high-resolution TEM (HRTEM) and X- ray diffraction (XRD) which confirmed that the synthesized structures possessing well nanocrystalline nature and monoclinic structure. The purity and composition of the synthesized products were examined by using energy dispersive spectroscopy (EDS), elemental mapping and Fourier transform infrared spectroscopy (FTIR). Using UV-Vis spectroscopy at room temperature we obtained indirect and direct band gap values slightly blue shifted to the bulk values. Finally, a plausible growth mechanism has been proposed for the formation of CuO layered hexagonal disks.

Journal of Physics D: Applied Physics 44, 155405 (2011)





Utilization of ZnO Nanocones for the Photocatalytic Degradation of Acridine Orange

*M.S. Chauhan , R. Kumar, Ahmad Umar , S. Chauhan, G. Kumar , M. Faisal , S. W. Hwang and A. Al-Hajry
Najran University*

Abstract:

A facile aqueous solution process was used to synthesize well-crystalline ZnO nanocones at low-temperature of 60 °C by using easily available chemicals, i.e. zinc nitrate hexahydrate and sodium hydroxide. The detailed morphological, structural and optical properties of the synthesized nanocones were investigated by using field emission scanning electron microscopy (FESEM) attached with energy dispersive spectroscopy (EDS), transmission electron microscopy (TEM) equipped with high-resolution (HRTEM), X-ray diffraction (XRD) pattern, Fourier transform infrared (FTIR) spectroscopy and UV-Vis. spectroscopy measurements. The detailed structural and optical properties of the as-synthesized nanocones confirmed that the obtained products are pure, well crystalline, possessing wurtzite hexagonal phase and exhibiting good optical properties. For application view point, the as-synthesized nanocones were used as photocatalyst for the efficient photocatalytic degradation of Acridine Orange. It was observed that Acridine orange was almost completely degraded within 110 minutes. This research demonstrates that the simply synthesized ZnO nanostructures could be efficient photocatalyst for the photocatalytic degradation of various organic dyes and chemicals.

Journal of Nanoscience and Nanotechnology 11, 40612011) 4066-)





Direct Growth of ZnO Nanosheets on FTO Substrate for Dye-Sensitized Solar Cells Applications

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Abstract:

ZnO nanosheets were directly grown on fluorine-doped tin oxide (FTO) substrate via simple solution process at low temperature by using zinc chloride and hexamethylenetetramine (HMTA). The morphological characterizations by SEM and TEM confirmed that the deposited structures are nanosheets in which some are assembled in flower-shaped morphologies. The detailed structural investigations revealed that the deposited nanosheets are pure and crystalline ZnO and composed of Zn and O only. The obtained ZnO nanosheets on FTO substrate was used as a photoanode to fabricate the dye sensitized solar cells (DSSCs). The fabricated DSSCs exhibited an overall light-to-electricity conversion efficiency of 1.45 %. A short-circuit current of 4.51 mA/cm², open-circuit voltage of 0.610 V and fill factor of 0.53, was achieved from the fabricated ZnO nanosheets based DSSCs.

Journal of Nanoscience and Nanotechnology 11, 35602011(3564-)





Growth and properties of Ag-doped ZnO nanoflowers for highly sensitive phenyl hydrazine chemical sensor application

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Abstract:

We report here the fabrication of a robust, highly sensitive, reliable and reproducible phenyl hydrazine chemical sensor using Ag-doped ZnO nanoflowers as efficient electron mediators. The Ag-doped ZnO nanoflowers were synthesized by facile hydrothermal process at low-temperature and characterized in detail in terms of their morphological, structural, compositional and optical properties. The detailed morphological and structural characterizations revealed that the synthesized nanostructures were flower-shaped, grown in very high-density, and possessed well-crystalline structure. The chemical composition confirmed the presence of Ag into the lattices of Ag-doped ZnO nanoflowers. High sensitivity of $\sim 557.108 \pm 0.012 \text{ mA.cm}^{-2} \cdot (\text{mol L}^{-1})^{-1}$ and detection limit of $\sim 5 \times 10^{-9} \text{ mol L}^{-1}$ with correlation coefficient (R) of 0.97712 and short response time (10.0 s) were observed for the fabricated chemical sensor towards the detection of phenyl hydrazine by using a simple current-voltage (I-V) technique. Due to high sensitivity and low-detection limit, it can be concluded that Ag-doped ZnO nanoflowers could be an effective candidate for the fabrication of phenyl hydrazine chemical sensors.

Talanta, In Press (2012)





Ultra-sensitive ethanol sensor based on rapidly synthesized Mg(OH)₂ hexagonal nanodisks

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Abstract:

Magnesium hydroxide (Mg(OH)₂) hexagonal nanodisks were synthesized via a facile microwave-assisted hydrothermal process and used, for the first time, as an efficient electron mediators for the fabrication of efficient ethanol chemical sensor. The synthesized hexagonal nanodisks were characterized in terms of their morphological and structural properties. The detailed morphological and structural investigations reveal that the synthesized Mg(OH)₂ hexagonal nanodisks are grown in high density, and possessing hexagonal crystal structure. Using as-synthesized Mg(OH)₂ hexagonal nanodisks, an efficient and robust ethanol chemical sensor has been fabricated which showed a very high and reproducible sensitivity of $\sim 6.89 \pm 0.01 \mu\text{A.cm}^{-2}.\text{mM}^{-1}$ with a response time of less than 10 s, linear dynamic range from 0.1 μM to 10 mM and a correlation coefficient of $R = 0.9957$. The limit of detection (LOD) was estimated to be $\sim 73 \text{ nM}$. This work demonstrate that the simply synthesized Mg(OH)₂ nanostructures can effectively be used for the fabrication of efficient ethanol chemical sensors.

Sensors and Actuators B: Chemical (In Press, 2012)





Temperature-Dependant Volumetric and Compressibility Studies of Drug-Surfactant Interactions in Dimethylsulfoxide (DMSO) Solutions

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Abstract:

In this work we present apparent molar volume, \bar{V}_v and apparent molar adiabatic compressibility, $\bar{\kappa}_v$ values of sodium dodecyl sulphate (SDS) in DMSO and in DMSO solution of 0.25 % w/v 6-methyl-4(2-hydroxy-3-methoxyphenyl)-2-thioxo-1,2,3,4-tetrahydro pyrimidine-5 carboxylic acid ethyl ester (a pyrimidine derivative drug). The study was carried out over a temperature range (20 – 40 oC) covering a wide range of SDS concentration (2 - 11 mmol dm⁻³). Being highly sensitive to the extrinsic experimental conditions, a difference observed in the SDS concentration dependence of both \bar{V}_v and $\bar{\kappa}_v$, values in pure DMSO and in 0.25 % w/v DMSO solution of 6-methyl-4(2-hydroxy-3-methoxyphenyl)-2-thioxo-1,2,3,4-tetrahydro pyrimidine-5 carboxylic acid ethyl ester is regarded as being due to the differing extent of SDS – DMSO interactions; the data tend to indicate the existence of relatively strong SDS – drug interactions.

Adv. Sci. Lett. 5, 1782012) 181-)





Ultra-high Sensitive ammonia chemical sensor based on ZnO Nanopencils

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Abstract:

This paper reports a very simple, reliable and facile methodology to fabricate ultra-high sensitive liquid ammonia chemical sensor using well-crystalline hexagonal-shaped ZnO Nanopencils as an efficient electron mediator. A low-temperature facile hydrothermal technique was used to synthesize ZnO Nanopencils. The synthesized nanopencils were characterized in detail in terms of their morphological, structural and optical properties which confirmed that the synthesized nanomaterial is well-crystalline, possessing wurtzite hexagonal phase and possessing very good optical properties. A very high sensitivity of $\sim 26.58 \mu\text{A cm}^{-2} \text{ mM}^{-1}$ and detection limit of $\sim 5 \text{ nM}$ with a correlation coefficient (R) of 0.9965 and a response time of less than 10 s were observed for the fabricated liquid ammonia by I-V technique. To the best of our knowledge, by comparing the literature, it is confirmed that the fabricated sensor based on ZnO Nanopencils exhibits highest sensitivity and lowest detection limit for liquid ammonia. This research opens a way that simply synthesized nanomaterials could be used as efficient electron mediators for the fabrication of efficient liquid ammonia chemical sensors.

Talanta 89, 155(2012) 161-)





Temperature dependant structural and electrical properties of ZnO nanowire networks

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Abstract:

In this paper, we report a successful growth of zinc oxide nanowire networks by simple thermal evaporation process by using metallic zinc powder in the presence of oxygen. The morphological investigations of the synthesized nanowire networks are conducted by using field emission scanning electron microscopy (FESEM) which reveals that the grown products are in high-density over the whole substrate surface and possessing nanowire networks like structures. The structural and compositional properties of the grown nanowire networks are analyzed by X-ray diffraction (XRD), transmission electron microscopy (TEM) and energy dispersive spectroscopy (EDS), respectively which confirm that the synthesized products are well-crystalline, with wurtzite hexagonal phase ZnO. The as-grown ZnO nanowire networks grown on silicon substrate are utilized to fabricate n-ZnO/p-Si heterojunction diode and presented in this paper. The I-V characteristics of the fabricated heterojunction diode at different temperatures (77K – 477K) are also investigated. High values of quality factor, which are obtained from this study, indicate a non-ideal behavior of the fabricated device. The mean barrier height of $\sim 0.84\text{eV}$ is also estimated and presented in this paper.

Journal of Nanoscience and Nanotechnology 12, (2012)





Microwave Assisted Rapid Growth of $\text{Mg}(\text{OH})_2$ Nanosheet Networks for Ethanol Chemical Sensor Application

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Abstract:

This paper reports a facile microwave-assisted synthesis of magnesium hydroxide $\text{Mg}(\text{OH})_2$ nanosheet networks and their utilization for the fabrication of efficient ethanol chemical sensor. The synthesized nanosheets networks were characterized in terms of their morphological, structural and optical properties by using various analysis techniques such as field emission scanning electron microscopy (FESEM), X-ray diffraction pattern (XRD), Fourier transform infrared (FTIR) and UV-Vis. spectroscopy. The detailed morphological and structural investigations reveal that the synthesized $\text{Mg}(\text{OH})_2$ products are nanosheet networks, grown in high density, and possessing hexagonal crystal structure. The optical band gap of as-synthesized $\text{Mg}(\text{OH})_2$ nanosheet networks was examined by UV-Vis. absorption spectrum, and found to be 5.76 eV. The synthesized nanosheet networks were used as supporting matrixes for the fabrication of I-V technique based





efficient ethanol chemical sensor. The fabricated ethanol sensor based on nanosheet networks exhibits good sensitivity ($\sim 3.991 \mu\text{A.cm}^{-2} \cdot \text{mM}^{-1}$) and lower detection limit ($5 \mu\text{M}$), with linearity ($R=0.9925$) in short response time (10.0 sec). This work demonstrate that the simply synthesized $\text{Mg}(\text{OH})_2$ nanosheet networks can effectively be used for the fabrication of efficient ethanol chemical sensors.

Journal of Alloys and Compounds 519, 42012) 8-)





Volumetric and Compressibility Studies of Salt Induced Hydrophobic Interactions in Pre – Micellar Region of Sodium Dodecyl Sulfate

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Abstract:

Apparent molar volume, Δv and apparent molar adiabatic compressibility, $\Delta \kappa$ of sodium dodecyl sulphate (SDS) in water and in 0.1 mol dm⁻³ aqueous solutions of LiCl and NaCl have been determined from density and speed of sound of measurements. Both these parameters are found to be highly sensitive to the presence electrolyte, in the concentration range 0.001 – 0.01 mol dm⁻³, which corresponds to the pre – micellar region of SDS; it indicates extensive intermolecular hydrophobic interaction in the presence of electrolytes. From a comparison between the two electrolytes in affecting the Δv and $\Delta \kappa$ values, NaCl is found to be more effective than LiCl. Above ~ 0.01 mol dm⁻³, the data indicate that solution loses its hydrophobic hydration character due to the micellization of surfactant. The constancy in Δv and $\Delta \kappa$ values further suggested that no structural – transition occurs under these experimental conditions. Classic structural hypothesis of hydrophobic hydration proposed by ‘Frank and Evans’ [1(a)] has been invoked to account for the negative Δv and $\Delta \kappa$ values of SDS observed in aqueous solutions of LiCl and NaCl. All these observations are ultimately found to justify that salt induced hydrophobic interaction is much more effective than solvent induced, however, the contribution of hydration characteristic of the ions is also found to play its own role.

Adv. Sci. Eng. Med. 4, 812012) 84-)





Highly Sensitive Ammonia Chemical Sensor Based on α -Fe₂O₃ nanoellipsoids

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Abstract:

This paper reports the facile synthesis of α -Fe₂O₃ nanoellipsoids by low-temperature hydrothermal process and effectively utilized for the fabrication of highly sensitive aqueous ammonia chemical sensor by I-V technique. The as-synthesized α -Fe₂O₃ nanoellipsoids were characterized in terms of their morphological, structural and optical properties. The detailed structural and optical properties confirmed the rhombohedral α -Fe₂O₃ structure and indirect (1.87 eV) and direct (2.15 eV) band gap, respectively, for synthesized nanoellipsoids. The fabricated aqueous ammonia sensor based on nanoellipsoids exhibits very high and reproducible sensitivity of $\sim 4.678 \mu\text{A.cm}^{-2}.\text{mM}^{-1}$ and detection limit $\sim 0.04 \text{ nM}$ with correlation coefficient (R) of 0.995 in short response time (10.0 sec). The presented work demonstrates that simply synthesized iron oxide nanostructures can efficiently be used for the fabrication of reliable and reproducible chemical sensors.

Journal of Physics D: Applied Physics 44, 425401 (2011)





الرقم: ص د-16612-36-440 التاريخ: 28/02/1440 عدد الصفحات: 82



ملخصات الأبحاث العلمية



ملخصات أبحاث أعضاء هيئة التدريس والتي تم نشرها في
مجلات علمية محكمة للعام الدراسي ١٤٣٣/١٤٣٤هـ



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