

## Article and Research

|   | <i>Title</i>                                                                                                  | <i>Year</i> | <i>Student</i>                          | <i>Major</i>               | <i>Supervisor</i>            |
|---|---------------------------------------------------------------------------------------------------------------|-------------|-----------------------------------------|----------------------------|------------------------------|
| 1 | <i>On Ordered spaces with generalized topology</i>                                                            | 2018        | <i>Abeer mohamed saleh Al-Ghatam</i>    | <i>Topology</i>            | <i>Dr Walid ben Hammouda</i> |
| 2 | <i>On the stability of permanent rotations of a rigid body dynamic</i>                                        | 2017        | <i>Mokhtarah Hussain Salman Alboali</i> | <i>Applied Mathematics</i> | <i>Dr. Adel Elmandouh</i>    |
| 3 | <i>Numerical Solution of nonlinear integral equations using radial basis functions and collocation method</i> | 2015        | <i>Abdulmohsen AlHadab</i>              | <i>Numerical Analysis</i>  | <i>Dr. Chokri Mnasri</i>     |
| 4 | <i>Krylov subspace Methods for Solving Linear Systems</i>                                                     | 2015        | <i>Aqilah Alsalman</i>                  | <i>Applied Mathematics</i> | <i>Dr. Chokri Mnasri</i>     |
| 5 | <i>The Adomian decomposition method and Applications in Partial differential equations</i>                    | 2016        | <i>Afnan Ghanim Ali AlGhanim</i>        | <i>Applied Mathematics</i> | <i>Dr. Chokri Mnasri</i>     |
| 6 | <i>The Adomian decomposition method and Applications in Partial differential equations</i>                    | 2016        | <i>Latifah Abdullatif Almulhim</i>      | <i>Applied Mathematics</i> | <i>Dr. Chokri Mnasri</i>     |
| 7 | <i>Homotopy analysis method for solving some nonlinear differential equations</i>                             | 2017        | <i>Hayam Ahmed Alshuaibi</i>            | <i>Applied Mathematics</i> | <i>Dr. Chokri Mnasri</i>     |
| 8 | <i>On Pseudo Valuation Domains</i>                                                                            | 2018        | <i>Khadijah Abdulmohsen Alsaleh</i>     | <i>Algebra</i>             | <i>Dr. Noomen Jarboui</i>    |

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|----|---------------------------------|------|-----------------------|----------------------------|------------------------------|
| 9  | <i>Combinatorial arabesque.</i> | 2017 | <i>Wjdan Alhaboob</i> | <i>Applied Mathematics</i> | <i>Dr.Meraa Mustafa Arab</i> |
| 10 |                                 |      |                       |                            |                              |

**Abstract**

*On Ordered spaces with generalized topology*

The concept of generalized topology was devised by A. Csaszar in 2002. In 2010, S. Jafari initiate the relationship between preorder and generalized topological spaces. In this research, we aim to give a complete study of the relationship between preorder and generalized topological structures. We will study some separation axioms, compactness, connectedness, etc

**Abstract**

*On the stability of permanent rotations of a rigid body dynamic*

This work interested in studying the stability of permanent rotation for a certain problem in rigid body dynamics in two different situations. The first one interested in studying the stability of permanent rotations in Euler-case in which the centre of mass is taken to the fixed point. The second one deals with the charged rigid body carrying one rotor along one of its principal axis of inertia. In both cases, the regions of linear stability and Lyapunov stability are clarified in the plane of the system's parameters.

**Abstract**

*Numerical Solution of nonlinear integral equations using radial basis functions and collocation method*

Collocation method based on radial basis functions is used to solve nonlinear mixed Volterra-Fredholm-Hammerstein integral equations. The problem has been reduced to a problem of solving a system of algebraic equations. Hence, the present method is very attractive and reduces the computer memory. Illustrative examples are given to demonstrate the validity and applicability of the proposed method.

**Abstract**

*Krylov subspace Methods for Solving Linear Systems*

A survey dealing with iterative methods in general and an investigation about projections methods and Krylov subspace method have been presented. Special emphasis are addressed on Projection methods, Conjugate gradient method, Arnoldi method and The Generalized Minimum Residual Method. Numerical experiments are presented at the last chapter to compare conjugate gradient methods with the well-known Gaus-Seidel in solving the Poisson differential equation.

**Abstract**

*The Adomian decomposition method and Applications in Partial differential equations*

Adomian decomposition method (ADM) for solving many examples of partial differential equations that appear in several physical models and scientific applications are presented. Basic steps of the ADM with many illustrative examples of basic steps of the method of Adomian decomposition are given. The Application of the Adomian decomposition Method in Wave Equation is investigated. A special case of a wave like equation is solved using ADM.

**Abstract**

*Homotopy analysis method for solving some nonlinear differential equations*

The homotopy analysis method is applied to solve linear and nonlinear fractional initial-value problems (fIVPs). Comparison of the results with those of Adomian's decomposition method (ADM) and homotopy perturbation

method (HPM) are presented. The homotopy analysis method contains an auxiliary parameter, which provides us with a simple way to adjust and control the convergence region of solution series. The homotopy analysis method (HAM) is applied to obtain the approximate analytical solutions of Cubic Boussinesq equation and Boussinesq-Burger equation