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Robe's Restricted Problem of 2+2 Bodies with a Roche Ellipsoid - Triaxial System

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Abstract This paper investigates the motion of two infinitesimal masses on the location and stability of the equilibrium points in Robe's restricted problem of 2+2 bodies with the bigger primary a Roche ellipsoid and the smaller a triaxial body. We suppose the bigger primary of mass m_1 to be filled with a homogeneous incompressible fluid of density ρ_1. The third and the fourth bodies (of mass m_3 and m_4 respectively) are small solid spheres of density ρ_3 and ρ_4 respectively inside the ellipsoid, with the assumption that the mass and the radius of the third and the fourth body are infinitesimal. We assume that m_2 is describing a circle around m_1. The masses m_3 and m_4 mutually attract each other, do not influence the motion of m_1 and m_2 but are influenced by them. We have taken into consideration all the three components of the pressure field in deriving the expression for the buoyancy force viz (i) due to the own gravitational field of the fluid (ii) that originating in the attraction of m_2 (iii) that arising from the centrifugal force. In this paper, equilibrium solutions of m_3 and m_4 and their linear stability are analyzed.

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A CLASS OF MAPPINGS BETWEEN R_z-SUPERCONTINUOUS FUNCTIONS AND R_δ-SUPERCONTINUOUS FUNCTIONS

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Abstract. A new class of functions called R_θ-supercontinuous functions is introduced. Their basic properties are studied and their place in the hierarchy of strong variants of continuity, which already exist in the literature, is elaborated. The class of R_θ-supercontinuous functions properly contains the class of R_z-supercontinuous functions [39] which in turn properly contains the class of R_{cl}-supercontinuous functions [43] and so includes all *cl*-supercontinuous (clopen continuous) functions ([38], [34]) and is properly contained in the class of R_δ-supercontinuous functions [24].

1. Introduction

From early days of mathematics the notion of continuity is of fundamental importance in almost all subdisciplines of mathematics. In many circumstances in geometry, analysis, topology and topologico-analytic situations continuity is not sufficient and a condition stronger than continuity is required to meet the demand of a particular situation. Several strong forms of continuity have been defined and studied by host of authors ([1], [19], [20], [22], [23], [28], [29], [31], [33], [34], [37], [38]). Moreover compact maps (operators) which arise in functional analysis also represent a strong variant of continuity. Hence it is of considerable significance both from intrinsic interest as well as from the applications view point to formulate and study new strong variants of continuity. In this paper, we introduce a new class of functions called 'R_θ-supercontinuous functions', study their basic properties and discuss their place in the hierarchy of strong variants of continuity that already exist in the mathematical literature. It turns out that the class of R_θ-supercontinuous functions properly contains the class of R_z-supercontinuous functions [39] which in turn properly contains the class of R_{cl}-supercontinuous functions [43] and so includes all *cl*-supercontinuous [38] (*clopen* continuous [34]) functions and is properly contained in the class of R_δ-supercontinuous functions [24].

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Stochastic Formulation of Fault Severity Based Multi Release SRGM Using the Effect of Logistic Learning

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Abstract
In today's environment, software reliability is one of the major concerns for Software firms. Many Software Reliability Growth Model (SRGM) has been developed and many are under process. In order to meet the requirements of consumer and to excel in competitive environment, companies are coming up with multiple add –ons. We design the model as stochastic with continuous state space because of large software system, the count of failures observed is huge and so, the variation in count of errors detected/ removed in each debugging is petite compared to original error content at the beginning of testing. This study is an add on to the software reliability literature where we have developed multi release SRGM's based on available concept of depending on previous releases. The errors have been categorically divided upon the severity of their removal as one stage, two stage, three stage fault removal process is applied in an environment of irregular fluctuations.

Keywords- Software Reliability Growth Modeling (SRGM), Stochastic Differential Equation (SDE), Multi up-gradation, Learning effect, Severity of faults.

1. Introduction

In today's world, computer is vital part of our day to day activities. Since software is embedded in everything, hence the need of reliable software. The need for reliable software gives birth to software reliability engineering. Not only to enhance but also for longitivity and need of nowadays reliable complex systems,, motivates the researchers to design tools and techniques not only to evaluate software quantitatively but also estimate important measures such as software reliability , mean time to failure, the number of remaining faults , failure intensity as well while testing and operation phase and thus named as Software Reliability Growth Modeling (SRGM'S).Numerous SRGM's have been proponed and authenticated under various presumptions until now by ample of analyzers across world. An SRGM which dictates the fault detection process as NHPP is proponed by Goel and Okumoto (1979) which hypothesized that fault removal rate is proportional to remaining fault number. The conjunction between testing and the corresponding number of faults removed are either exponential, s- shaped or mix of two (Pham, 2006) is illustrated by plenty of SRGM's, in last two decades. Because of software augmentation at consumer's end the conventional software reliability growth models are unsuccessful to achieve the error growth. Consequently, a new up-graded version of software is announced in trade when software reaches a level where it acquires its operational reliability desired by the firm.

In order to maintain its rapport among its customers, renowned software firms like IBM, ADOBE, and WIPRO etc. are working tirelessly. Ergo, their R & D departments keep a close

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AN INTRODUCTION TO WEAKER AND STRONGER FORM OF SOFT OPEN SETS BY γ-OPERATION

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Abstract: In this paper, we investigate the weaker form of soft sets using τ_γ-Int. We show relation between different kind of weak forms of soft open sets. In process to find the weaker we found its stronger form which we have discussed by the help of τ_γ-Cl. Finally, we give different kind of Separation Axioms by the help of these weak form and strong form of soft sets.

AMS Subject Classification: 54A40, 03E72, 20N25, 22A99, 06D72
Key Words: τ_γ-closure, soft τ_γ-interior, soft closure, soft interior

1. Introduction

The term Soft Set was coined by Molodtsov [4] in 1999 and developed a new approach for modeling uncertainties. Soft set has a rich potential for applications in several directions. One of them have been explained in Pei et al. [13]

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