

Chapter III

Objectives of the present study

The objectives of the present study are:

- a) To find out some of the exact solutions due to Yang SU(2) R-gauge field equations (2-4), Charap chiral field equations (2-8).
- b) To formulate a combination of the Yang SU(2) gauge field equations (2-4) and Charap chiral field equations (2-8), designated as the Combined Yang-Charap equations (2-10) and to find out some of the exact solutions of this set of combined equations.
- c) To represent graphically some of the exact solutions of these three equations.
- d) To revisit the Painleve' analysis of the Yang equations (2-4) in the sense of Weiss, Tabor and Carnevale [40].
- e) To investigate the Painleve' properties of the Charap equations (2-8) in the sense of Weiss et. al. [40].
- f) To investigate the Painleve' properties of the Combined equations (2-10) in the sense of Weiss et. al. [40].
- g) To find out methods for the generation of infinite number of solutions with Painleve' properties of the above equations.
- h) To discuss the question of Chaos in the perspective of Painleve' analysis and graphical representations of some solutions of these three equations.