**ICTP DIPLOMA PROGRAMME IN MATHEMATICS 2016-17**

**Dynamical Systems**

S. Luzzatto (10 lectures : 15 hrs)

1) Basic concepts and examples, discrete and continuous time dynamical systems, ODEs as vector fields, existence and uniqueness of solutions, conjugacy and structural stability.

2) One-dimensional linear maps and interval diffeomorphisms, classification up to topological and smooth conjugacy.

3) Local dynamics, two-dimensional linear maps with real and complex eigenvalues, local linearization of contracting fixed points.

4) Chaotic dynamics, symbolic dynamics, dynamically defined cantor sets, full branch maps.