LTCC Proposed Course

● Title: Dynamical Systems in Cosmology

● Basic details:
  – Extensive module
  – Basic course
  – Core audience: 1st/2nd year, applied

● Course description:
  – Keywords: cosmology, dynamical systems
  – Syllabus: Cosmology is a well established research area in physics while dynamical systems are well established in mathematics. It turns out that dynamical system techniques are very well suited to study aspects of cosmology. This course gives students an introduction to dynamical systems techniques used in cosmology, and at the same time an introduction to cosmology. In the first part we will discuss the equations of cosmology for simple matter sources using the language of dynamical systems. Then we will move to more interesting models. Students working in this field directly are encouraged to present their model.


  – Prerequisites: Some knowledge of general relativity or cosmology would be beneficial but is not essential.

● Format:
  – Discussions/problem sheets: For students working in this field directly, it would be great to see their concrete model and discuss it in class. I would also like to show students some Mathematica note books which might be useful. There will be 3 or 4 problem sheets.

  – Lecture notes: Students will be provided with lecture notes.

  – Necessary support facilities: whiteboard, markers and projector.

  – Necessary software requirements: none


  – Lecture/tutorial/discussion: 7-8h lectures, 2-3h tutorials/discussion

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