Cosmology I

University of Trieste, master degree program in Physics

2023/2024

Prof. Pierluigi Monaco
http://adlibitum.oats.inaf.it/monaco

Schedule

Introduction, Einstein equations: 4 March 2024.
Schwartzschild metric: 8 March.
The event horizon: 11 March.
Photon capture radius: 15 March.
Introduction to FLRW models: 18 March.
First intermediate test, start: 18 March.
Friedmann-Lemaitre-Robertson-Walker metric: 22 March.
First intermediate test, end: 25 March, 11 am.
The Hubble law: 25 March.
Friedmann equations from Einstein equations: 5 April.
Friedmann equations, Einstein-de Sitter model: 8 April.
Horizons: 12 April.
Flat and non-flat models: 15 April.
Models with Λ: 19 April.
Second intermediate test, lab work: 22 April.
Introduction to the early Universe: 29 April.
Second intermediate test, end: 3 May, 11 am.
Thermodynamics of the early Universe: 3 May.
Planck time and phase transitions: 20 May.
Problems of the hot big bang: 22 May.
Inflation: 24 May.
Quantum fields in an expanding Universe: 27 May.
Third intermediate test, start: 27 May.
Thermal history of the early Universe: 29 May.
Big bang nucleosynthesis: 31 May.
Third intermediate test, end: 3 June, 11 am.
Recombination: 3 June.
Third intermediate test, discussion: 5 June.
Precision cosmology: 7 June.

Web site: http://adlibitum.oats.inaf.it/monaco/cosmology1.htlm