



ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

DIPARTIMENTO DI FISICA E ASTRONOMIA
Department of Physics and Astronomy - DIFA

The informal interview, in English, will be based on the following topics, whose knowledge is considered fundamental to successfully follow the Master program:

- 1. Hydrostatic equilibrium**
- 2. Gas Pressure and equation of state + Physics of degenerate matter**
- 3. Thermo-nuclear Reactions**
- 4. Energy transport and gas thermodynamics + Radiative transfer**
- 5. The structure of spectral lines**
- 6. Black body radiation (based on radiative transfer)**
- 7. Bremsstrahlung (from thermal plasma)**
- 8. Synchrotron radiation from a magnetized relativistic plasma**
- 9. Thomson, Compton & Inverse Compton scattering**

Possible Reference Textbooks (but the same concepts can be found in any physics and astrophysics textbook):

"An introduction to Modern Astrophysics", by B.W. Carroll & D.A Ostlie
"Radiative processes in Astrophysics", by G.B. Rybicki & A.P. Lightman

If you need more information, contact the Director of the Master Program:
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