Wednesday, May 16, 2018

SUN by Observatoire de Paris + PSL University.

By May, 14

This internship is into five weeks each corresponding to a chapter, and therefore a particular theme.

1. Constants and units
2. The electromagnetic spectrum
3. Photon-matter interactions
4. The black body
5. Elementary physics of plasmas

Sun physics - energy transport and atmosphere
Energy transport
helioseismology
Structure of the atmosphere and temperature profile
Magnetic structure of the photosphere
Dynamic structure of the photosphere

Sun physics - solar corona and wind
Solar atmosphere and magnetic field
The wind and the heliosphere
Why is the crown hot?
A first glimpse of the eruptive activity of the Sun
The Sun among the stars

Solar Activity Cycle and Sun-Earth Relationships
The solar activity cycle: phenomenology and origin
Spots, crown structure and cosmic rays
Solar cycle and magnetic field in the photosphere
The magnetic origin of the activity cycle
Earth's space environment: atmosphere, ionosphere and magnetosphere.
What is the Earth's space environment?
The magnetosphere and its interaction with the solar wind
The solar wind and its disturbances on the Earth's magnetic field
Meteorology of space - overview of some consequences for technology

and human activities

Instability of the magnetic field - Solar eruptive activity
The origin of the magnetic field
Manifestations of instabilities
Basic processes
From the Sun to the Earth

An appendix of mathematical and physical tools that complements the introductory chapter and gives all the mathematical background necessary to go further in understanding the physics of the Sun.

Named Mathematical Annexes

Teachers (Special thanks)

KARL-LUDWIG KLEIN

Astronomer, Observatory of Paris, LESIA.

Researcher in Sun physics and Sun-Earth relations, he works with radio astronomy tools and energetic particle detectors.

He is scientific leader of two instruments at the Nançay radio astronomy station dedicated to the observation of the Sun, the Radioheliograph and the ORFEES spectrograph, and two neutron monitors (Kerguelen Islands and Terre Adélie).

His main research interests are the acceleration of particles at high energies in the solar corona during eruptions and mass ejections.

He teaches in solar physics in the University Diploma "Explore and Understand the Universe" of the Paris Observatory and gave courses in astrophysics and plasma physics at the University of Orleans.

SOPHIE MASSON.

Deputy Astronomer, Paris Observatory, LESIA

It studies the fundamental properties and dynamics of solar flares and the acceleration, injection and propagation of solar energy particles.
For that, Sophie Masson couples the numerical and observational approaches.

For the teaching component, Sophie Masson is co-leader and tutor of the Online University Diploma of the Observatoire de Paris, "Enlightenment on the Universe".

It is in the context of online and distance learning that she wished to participate in the creation of MOOC Soleil! worn by Ludwig Klein.

Course Map:

- Sun physics - identity card
- Identity card of the Sun
- Source of energy of the Sun
- Chemical and gravitational energy
- Nuclear fusion
- Nuclear energy and neutrinos
- Some elements of history

It is at @Obs_Paris that according to the observed inconsistencies of the occultation of the satellites of Jupiter that was determined the speed of the Light for the first time in 1676 by the Danish astronomer Olaus Römer.

The International Day of Light held on May 16th.

The anniversary of the first successful operation of the laser in 1960 by physicist and engineer Theodore Maiman.

The laser is a perfect example of how a scientific discovery can yield revolutionary benefits to society in communications, healthcare and many other fields.

Note that the International Day of Light is not just about lasers and science.

It also includes aspects of art, culture, entertainment everywhere light is present.

Adding my interest for Space Plasmas.

Posted by Veronica IN DREAM at 6:06 PM