

PROGRAM AT A GLANCE – WEEK 1 at UAM-2021

23.08

Opening day

Opening Session
(morning) Presentation of UAM

Presentations of the Lab sessions prepared for this School (afternoon)

24.08

A vision of the main frontier research fields

Introductory Vision on Astrophysics: Dark Matter/ Energy and Gravity: the new challenges

Introductory Vision Talk on Particle Physics: Higgs & Beyond: the new challenges

25.08

Fundamental Research and High Tech Advances

Advances in deep sub Microelectronics, including radiation hardness.

On-Chip implementation of AI Machine Learning

26.08

Intelligence on instruments: The Particle Physics case

Real time Triggering at HL-LHC & future machines with: New tracking
New calorimetry
Novel FEE timing detectors
Triggerless Option

27.08

Intelligence on instruments: The Astrophysics case

EUCLID.
DESI

KEYNOTE LECTURE: ARTIFICIAL INTELLIGENCE

KEYNOTE THE NOVEL NEURO TECHNOLOGIES: IMPACT ON SCIENCE MEDICINE & SOCIETY

KEYNOTE LECTURE: INTRODUCTION TO ACCELERATORS & APPLICATIONS

KEYNOTE LECTURE; THE FUTURE ACCELERATORS, THE ELECTRON-POSITRON OPTIONS

KEYNOTE LECTURE; THE FUTURE ACCELERATORS: HADRON COLLIDERS & MUON OPTIONS

28.08

Medical Day

The immune system: introduction & basic concepts
Technological Solutions for Spinal Cord injuries

Imaging and Neurological Diseases

29.08

Organized sightseeing Tour & Lunch Banquet in SEGOVIA

KEYNOTE LECTURE; NANOTECHNOLOGY APPLIED TO NEW VACCINES

EUCLID: is an ESA mission; it aims at understanding why the expansion of the Universe is accelerating and what is the nature of the source responsible for this acceleration which physicists refer to as dark energy

<https://www.euclid-ec.org/>

DESI: Dark Energy Spectroscopic Experiment: <https://www.desi.lbl.gov/>

ZAIGA: Zhaoshan Long-Baseline Atom Interferometer; new type of underground facility, in the underground of Zhaoshan mountain southeast to Wuhan. To be equipped with long-baseline atom interferometers, high-precision atom clocks & large-scale gyros.

MIGA: Exploring gravity with MIGA large scale atom interferometer (FR)

PROGRAM AT A GLANCE – WEEK 2 at UAM-2021

30.08

Big Data & Large Data transmission: New trends

Introduction to Big data/MPC

HPC: CERN, SKA0, GEANT & PRACE Collaboration

High rate/High speed data transmission challenges & solutions

31.08

Introduction to artificial intelligence

Introduction to IA & the Internet of Things

Introduction to Machine Learning & Deep Learning

01/09

Introduction to the Quantic World

Introduction to Quantum Systems

Introduction to Quantum Computing

02.09

The Quantic World: the applications side

Introduction to Quantum Communication

Quantum Computers: the R&D Challenges

Q.C.: The Industrial Side

03.09

New Directions in HPC

Quantum Photonics

Programmable Photonics

KEYNOTE LECTURE: PHYSICS AT THE INTERFACE OF NANOTECH & BIOLOGY WILL TRANSFORM MEDICINE AND WHAT WE THINK ABOUT LIFE

KEYNOTE LECTURE: CREATING A SUN IN THE LAB: THE ITER WORLDWIDE ENTERPRISE

KEYNOTE LECTURE; SPACE ASTROPHYSICS: THE NEW DEVELOPMENTS

Keynote Lecture: Quantum Computing Pros & Cons, R&D in Academia & High Tech Firms, Challenges & Perspectives

MENS SANA IN CORPORE SANO: RUNNING & SWIMMING RACES

04.09

Posters session

Final Keynote WHY Fundamental research is ESSENTIAL

School Awards Farewell Party

Hands-on Labs are prepared for each Lecture & keynote topics covered in this School. Details of the Lectures, Labs and Keynotes sessions are in the Timetable page.