

## PROGRAMME PREVISIONNEL de L'ECOLE INFIERI 2020 a l'UAM

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**SUNDAY July 5, 2020: *ARRIVAL & SCHOOL REGISTRATION: 11am to 6pm***

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### **MONDAY July 6, 2020: OPENING DAY**

*The SCHOOL OPENING DAY will include the presentation of the University (academic and research aspects) in the morning and the presentation of all the Lab sessions by the Lab organizers in the afternoon plenary session*

**\*9:00am-1pm MORNING SESSION (PLENARY)** : Main Auditorium of the UAM Biology Institute

#### **THE PRESENTATION OF THE AUTONOMA IN MADRID**

*CHAIRIED BY PROF. JOSE DEL PESO (CHAIR OF THE LOC)*

*9:00-9:30am: **INTRODUCTORY PRESENTATION OF UAM** by an Authority of the University.*

*9.30 to 13:00 **SERIES OF TALKS (20')** BY HEAD REPRESENTATIVES OF THE MAJOR SCHOOLS AND RESEARCH DEPARTMENTS OR LABS OF THE UNIVERSITY (TO BE DEFINED WRT UNIVERSITY ORGANIZATION), WHICH CONTRIBUTE TO THE SCHOOL, AMONG WHICH :*

**FACULTY OF MEDICINE (TBA)**

**IFT , PROF. LUIS IBANEZ, DIRECTOR OF IFT (TBC)**

**ESCUELA POLITECNICA SUPERIOR (DEPARTMENT OF COMPUTER SCIENCE AND TECHNOLOGY) (TBA)**

**IMDEA....(TBA)**

**AND ALSO COLLABORATING NEIGHBOURING CAMPUS :** *UC3M (JUAN JOSE VAQUERO, DEPUTY RECTOR), UPM (TBA), CIEMAT(TBA).*

*13:00-14:00: LUNCH BREAK*

**14:00-18:00 AFTERNOON SESSION (PLENARY)** at Main Auditorium UAM Biology Institute

**PRESENTATION OF THE LAB SESSIONS BY THE LAB INSTRUCTOR(S).** *(8' each)*

*A booklet with the Labs tittle, names of the organizers and at least an abstract describing its content will be hosted on the School website one month before the start of the school.*

*The registration to the Lab sessions in the dedicated location on the School INDICO website, will follow this Labs presentation.*

**18:00-20:00: KEYNOTE LECTURE (PLENARY)** at Main Auditorium

### **ARTIFICIAL INTELLIGENCE : WHAT DOES THIS REALLY MEANS ?**

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### **TUESDAY July 7, 2020**

**A VISION OF THE MAIN FRONTIER RESEARCH FIELDS COVERED BY THIS SCHOOL.**

**9:00-13:00 MORNING SESSION (PLENARY)** at Main Auditorium of Biology Institute

*9:00-9 :50 **INTRODUCTORY VISION TALK ON ASTROPHYSICS : DARK MATTER & DARK ENERGY, DR. DAVID CERDENO (IPPM DURHAM, UK)***

*9:50-9 :45 **INTRODUCTORY VISION TALK ON COSMOLOGY : GRAVITY, TBA (CONTACT : ALBERTO)***

*10:45-11:15: COFFEE BREAK*

*11:15-13:00 **INTRODUCTORY VISION TALK ON PARTICLE PHYSICS: HIGGS & BEYOND, WHAT CAN WE LEARN WITH THE FUTURE ACCELERATORS? DR. MICHELANGELO MANGANO (CERN, CH)***

*13:00-14:30: LUNCH BREAK*

**14:30-17:30 AFTERNOON SESSION (PARALLEL)**

-----> LABS SESSIONS <-----

17:30-18:00: COFFEE BREAK

**18:00-20:00 KEYNOTE LECTURE (PLENARY): INTRODUCTORY VISION TALK ON THE MEDICAL SIDE: HIGH TECHNOLOGY APPLIED TO NEUROLOGICAL DISEASES BY PROF. RAFAEL YUSTE (NEUROLOGY CENTER, COLUMBIA UNIVERSITY, N.Y. USA)**

**WEDNESDAY July 8, 2020:**

**INTELLIGENCE on INSTRUMENTS: the high technology side**

*The advanced technology fields covered by the School from nano/VDSM Microelectronics, Photonics & Data transmission, Big Data and High Performance Computing, will be presented in dedicated lectures by worldwide experts, including Industrial representatives.*

*Focus here: "all-in-one", from VFE to Advanced Signal Processing*

**9:00-13:00 MORNING SESSION (PLENARY) Main Auditorium of UAM Biology Institute**

9:00-10:45 FUTURE TRENDS IN DEEP SUB-MICRON ELECTRONICS BY DR. SANDRO MARCHIORO (CERN)

10:45-11:05 COFFEE BREAK

11:05-12:00 RADIATION TOLERANCE AND RADIATION HARDNESS BY DR. SANDRO MARCHIORO (CERN)  
*in continuation of the previous lecture (by the same lecturer or another one): topic of increasing importance for HL-LHC or Future machines but also in Astrophysics (SPATIAL) and other applications...*

12:00-13:00: ADVANCES ON EMBEDDED PROCESSOR TECHNOLOGY BY PROF. BORIS MURMANN (STANFORD U, USA) OR IMEC, TBA (SANDRO M. IS LOOKING FOR THIS SPEAKER)

13:00-14:30: LUNCH BREAK

**14:30-17:30 AFTERNOON SESSION (PARALLEL)**

-----> LABS SESSIONS <-----

**18:00-20:00 OVERVIEW KEYNOTE (PLENARY) Main Auditorium of UAM Biology Institute**

**INTRODUCTION TO ACCELERATORS**

*THE ACCELERATORS AND THEIR MANY APPLICATIONS: AN OVERVIEW*

*chaired by Dr. Pierre VEDRINE (Head of Department of Accelerators, Cryogenics and Magnets, DACM, IRFU-CEA, FR)*

18:00-19:00: GENERAL INTRODUCTION TO ACCELERATORS: DR. FREDERIK BORDRY: DIRECTOR OF ACCELERATORS & TECHNOLOGY, CERN, TBC (CONTACT : PIERRE)

19:00-20:00 THE MANY USES AND APPLICATIONS OF ACCELERATORS: AN OVERVIEW, PROF. ANTONIO JOSE ROQUE DA SILVA, DIRECTOR OF CENTRO NACIONAL DE PESQUISA EN ENERGIA E MATERIAIS, CNPEM, CAMPINAS, SAO-PAULO STATE, BRAZIL. TBC (CONTACT : PIERRE)

**THURSDAY July 9, 2020:**

**INTELLIGENCE on INSTRUMENTS: THE PARTICLE PHYSICS CASE**

**9:00-13:00 MORNING SESSION (PLENARY) Main Auditorium of UAM Biology Institute**

**FOCUS ON TRIGGERING; REAL TIME SELECTION/DECISION**

TRIGGERING AT HIGH LUMINOSITY LHC AND POSSIBLE OUTCOMES FOR FUTURE MACHINES:

9:00-9:50 : REALTIME TRIGGERING APPLIED TO NEW TRACKING SYSTEMS BY DR. IAN TOMALIN (RAL, UK)

9:50-10:40 : REALTIME TRIGGERING APPLIED TO NOVEL CALORIMETRY TECHNOLOGIES DR. ALEXANDRE ZABI (LLR, ECOLE POLYTECHNIQUE, FR) TBC (CONTACT : AURORE)

11:40-11:00: COFFEE BREAK

11:00-11:50 REALTIME TRIGGERING APPLIED TO NEW TIMING DETECTORS: BY PROF. TOMMASO TABARELLI (TORINO UNIVERSITY, IT)

11:50-13:00 REALTIME DECISION BASED ON TRIGGERLESS SYSTEMS BY DR. PAULA COLLINS (CERN) TBC (CONTACT : AURORE)

13:00-14:30: LUNCH BREAK

**AFTERNOON SESSION (PARALLEL) 14:30 to 17:30**

-----> LABS SESSIONS <-----

17:30-18:00 COFFEE BREAK

**18:00-20:30 OVERVIEW KEYNOTE (PLENARY) Main Auditorium of UAM Biology Institute**

**THE FUTURE ACCELERATORS SESSION 1: THE ELECTRON-POSITRON PROJECTS**

*chaired by Prof. Juan FUSTER VERDU (IFIC and U. Valencia)*

18:00-18:45 PHYSICS AT THE NEXT ELECTRON POSITRON MACHINE(S), PROF. JUAN FUSTER VERDU IFIC-CSIC & UNIVERSITY OF VALENCIA, SP.

18:45-19:45 THE ELECTRON POSITRON MACHINES IN PROJECT : DR. ANGELES FAUSS-GOLFE, LABORATOIRE DE L'ACCELERATEUR LINEAIRE, LAL, ORSAY, FR

19:45-20:30 NOVEL HIGH GRADIENT ACCELERATORS: PLASMA AND BEYOND, DR RALF WOLFGANG ASSMAN, GE)

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**FRIDAY July 10, 2020**

**INTELLIGENCE on INSTRUMENTS: the Astrophysics case**

**9:00 to 13:00 MORNING SESSION (PLENARY) Main Auditorium of UAM Biology Institute**

9:00-10:30: NEW SEARCHES FOR DARK MATTER AND DARK ENERGY WITH EUCLID, BY DR. FRANCISC CASTANDER (ICE/IEEC/CSIC, UAB)

10:30-10:50: COFFEE BREAK

10:50-11:50 NEW SEARCHES FOR DARK MATTER AND DARK ENERGY WITH DESI TBA (CONTACT : AURORE : THE DESI CONF COMMITTEE IS LOOKING FOR)

11:50-12:30 NOVEL SEARCHES FOR GRAVITY WITH ATOM INTERFEROMETRY: ZAIGA IN CHINA BY PROF. MINGSHENG ZHAN, WUHAN INSTITUTE OF PHYSICS AND MATHEMATICS, WIM, CHINESE ACADEMY OF SCIENCE). TBC (CONTACT : AURORE ET NICOLA)

12:30-13:00 : NOVEL SEARCHES FOR GRAVITY WITH ATOM INTERFEROMETRY: MIGA IN FRANCE TBA (CONTACT : AURORE)

13:00-14:30: LUNCH BREAK

**14:30 to 17:30 AFTERNOON SESSION (PARALLEL)**

-----> LABS SESSIONS <-----

17:30-18:00 COFFEE BREAK

**18:00-20:00 KEYNOTE OVERVIEW (PLENARY) Main Auditorium of UAM Biology Institute**

**THE FUTURE ACCELERATORS SESSION 2: THE HADRON-HADRON & MUON PROJECTS**

*chaired by Prof. Nadia PASTRONE (INFN and University of Torino, IT)*

18:00-18:45 PHYSICS POTENTIAL AT HIGH ENERGY HADRON COLLIDERS AND MUON COLLIDER, PROF. NADIA PASTRONE, INFN & UNIVERSITY OF TORINO, IT.

18:45-19:45 FCC-HH, SPPC AND MAGNETS R&D: DR. LUCIO ROSSI, HEAD OF THE HIGH-LUMINOSITY LHC UPGRADE AT CERN. (CONTACT : PIERRE)

19:45-20:30 MUON COLLIDERS, DR. SCHULTE, CERN TBC (CONTACT : PIERRE)

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**SATURDAY July 11, 2020:**

**The MEDICAL DAY**

**9:00-13:00 MORNING SESSION (PLENARY) Main Auditorium of UAM Biology Institute**

9:00-10:45: IMAGING AND NEUROLOGICAL DISEASES, DR. CYRIL POUPON, DEPUTY DIRECTOR OF NEUROSPIN, IN CHARGE OF THE MRI PLATFORM AT NEUROSPIN, DEPARTMENT OF THE FREDERIC JOLIOT INSTITUTE FOR LIFE SCIENCE, CEA, FR.

10:45-11:15 COFFEE BREAK

11:15-12:10 TECHNOLOGICAL SOLUTIONS FOR SPINAL CORD INJURIES, DR. TERESA GONZALEZ, IMDEA NANOSCIENCE INSTITUTE, UAM-CSIC, SP

12:10-13:00 TECHNOLOGIES FOR REHABILITATION OF PATIENTS WITH NEUROLOGICAL DISABILITIES, DR ANGEL GIL-AGUDO SERVES AS DIRECTOR OF THE BIOMECHANICS AND TECHNICAL AIDS DEPARTMENT AT NATIONAL HOSPITAL FOR SPINAL CORD INJURY, TOLEDO SPAIN.

13:00-14:30: LUNCH BREAK

**14:30-17:30 AFTERNOON SESSION (PARALLEL)**

-----> LABS SESSIONS <-----

17:30-18:00 COFFEE BREAK

**18:00-20:00 KEYNOTE OVERVIEW (PLENARY) Main Auditorium of UAM Biology Institute**

**NANOSCIENCE & NANOMEDECINE, PROF. MAURO FERRARI, PRESIDENT OF THE EUROPEAN RESEARCH COUNCIL, TBINVITED (CONTACT: AUREE ???)**

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**SUNDAY JULY 12, 2020: FREE DAY**

*VISIT PROGRAM organized by UAM-LOC, at SEGOVIA with the School Banquet at Lunch*

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**MONDAY July 13, 2020**

**DATA TRANSMISSION:**

**HIGH RATE HIGH SPEED and NEW TRENDS in DATA COMMUNICATION**

**9:00 to 13:00 MORNING SESSION (PLENARY) Main Auditorium of UAM Biology Institute**

9:00-10:15 THE HIGH RATE/HIGH SPEED DATA TRANSMISSION CHALLENGES & SOLUTIONS: PHOTONICS APPLIED TO TELECOM OR FROM QUANTUM COMMUNICATION (USA)

10:15-10:45: COFFEE BREAK

10:45-13:00 THE HIGH RATE AND HIGH SPEED DATA TRANSMISSION CHALLENGES AND SOLUTIONS: QUANTUM COMMUNICATION BY PROF. VICENTE MARTIN (UNIVERSITY POLITECNICA MADRID)

13:00-14:30: LUNCH BREAK

**AFTERNOON SESSION (PARALLEL) 14:30 to 17:30**

-----> LABS SESSIONS <-----

17:30-18:00 COFFEE BREAK

**18:00-20:00 KEYNOTE OVERVIEW (PLENARY)**

**BIOPHOTONICS TBA (CONTACT???????)**

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**TUESDAY July 14, 2020:**

**INTRODUCTION to ARTIFICIAL INTELLIGENCE**

**MORNING SESSION (PLENARY) 9:00 to 13:00**

9:00-11:00 INTRODUCTION TO ARTIFICIAL INTELLIGENCE AND THE INTERNET OF THINGS *by Prof. Geoffrey HINTON (Toronto University) (tbc) (CONTACT : AUREE ET AL)*

11:00-11:20: COFFEE BREAK

11:20-13:00 INTRODUCTION TO MACHINE LEARNING AND DEEP LEARNING BY PROF. ANDREW NG (STANFORD, USA) (TBC) (CONTACT : AURORE ET AL)

INCLUDE ALSO IN THIS MORNING SESSION AND/OR RELATED LABS: THE ETHICAL, PRIVACY & SECURITY AI-RELATED ISSUES WILL BE REMINDED HERE & IN THE CORRESPONDING LABS

13:00-14:30: LUNCH BREAK

14:30-17:30 AFTERNOON SESSION (PARALLEL)

-----> LABS SESSIONS <-----

18:00-20:00 KEYNOTE OVERVIEW (PLENARY)

**RENEWABLE ENERGIES & ARTIFICIAL INTELLIGENCE**

18:00-19:00 INTRODUCTION TO THE RENEWABLE ENERGIES WORLD, TBA (CONTACT : AURORE, ROGERIO)

19:00-20:00 IMPACT OF ARTIFICIAL INTELLIGENCE ON RENEWABLE ENERGIES TBA (CONTACT : AURORE, ROGERIO)

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**WEDNESDAY July 15, 2020:**

**THE BIG DATA-DAY**

9:00-13:00 MORNING SESSION (PLENARY)

9:00-10:45 INTRODUCTORY LECTURE TO BIG DATA, DR. SERGI GIRONA TURELL, BSC, BARCELONA, SP

10:45-11:10: COFFEE BREAK

11:10-12:00 INTRODUCTORY LECTURE TO BIG DATA (CONT'D), DR. SERGI GIRONA TURELL, BSC, BARCELONA, SP

12:00-13:00 NEW DEVELOPMENTS ON MASSIVE PARALLEL COMPUTING BY HIGH TECH COMPUTING INDUSTRY BY INTEL REPRESENTATIVE (TBA) (CONTACT : ROGERIO, INTEL USA)

13:00-14:30: LUNCH BREAK

14:30-17:30 AFTERNOON SESSION (PARALLEL)

-----> LABS SESSIONS <-----

18:00-20:00 KEYNOTE OVERVIEW (PLENARY)

**ASTROPHYSICS IN THE SPACE: THE FUTURE**

*Organized by Prof. Enrique Fernandez (IFAE, Barcelona, Spain)*

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**THURSDAY JULY 16, 2020:**

**QUANTUM COMPUTING: SI or NO**

9:00-13:00 MORNING SESSION (PLENARY)

9:00-11:15 INTRODUCTION TO QUANTUM COMPUTING (USA ?)

11:15-11:35: COFFEE BREAK

11:35-13:00 QUANTUM COMPUTING: AN OVERVIEW OF THE INDUSTRIAL SIDE, DR. ROBERT PATTI (NHANCED SEMICONDUCTORS, Co, USA)

13:00-14:30: LUNCH BREAK

14:30-17:30 AFTERNOON SESSION (PARALLEL)

-----> LABS SESSIONS <-----

17:30-18:00 COFFEE BREAK

18:00-20:00 KEYNOTE OVERVIEW (PLENARY)

**QUANTUM COMPUTING : PROS & CONS (PENDING ISSUES SOLVABLES OR NOT, R&D)**

PANEL INCLUDING DR HERMAN SIERRA (IFT), ON QUANTUM SYSTEMS (45 MIN), HARDWARE SOLUTIONS R&D (QUANTIC & LETI-CEA) (1H), REPRESENTATIVE OF INDUSTRY , USA (30 MIN FOR PANEL CONCLUSIONS). (CONTACT: AURORE ET AL)

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**FRIDAY JULY 17, 2020:**

**NEW DIRECTIONS in HIGH PERFORMANCE COMPUTING :**

**9:00-13:00 MORNING SESSION PLENARY**

**9:00-10:45: QUANTUM PHOTONICS , PROF DICK R. ENGLUND (MIT), TBC (BOB IS THE CONTACT)**

*10:45-11:15: COFFEE BREAK*

**11:15-13:00: PROGRAMMABLE PHOTONICS, PROF DAVID MILLER (STANFORD, USA), TBC (BOB IS THE CONTACT)**

*13:00-14:30: LUNCH BREAK*

**14:30 to 17:30 AFTERNOON SESSION (PARALLEL)**

-----> LABS SESSIONS <-----

**18:00 =====> MENS SANA IN CORPORE SANO<=====19:00**

**Two Competitions on choice:**

**THE "TRADITIONAL" RUNNING RACE**

**Or NEW:**

**THE SWIMMING COMPETITION**

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**SATURDAY July 18, 2020**

**POSTER SESSION & FINAL SESSION**

**9:00-15:00: MORNING SESSION (PLENARY)**

*This session is dedicated to presenting the posters by the school attendants; A coffee break and buffet will be served during the Posters presentation*

*by the SCHOOL ATTENDANTS*

**15:00-17:00 FINAL KEYNOTE (PLENARY)**

**WHY FUNDAMENTAL RESEARCH IS ESSENTIAL:**

*DR. MIGUEL JIMENEZ (HEAD OF THE CERN TECHNOLOGY DEPARTMENT)*

**=====> 17:00-19:00: SCHOOL AWARDS<=====**

**Best Students (Best questions) 3 prizes**

**Best Posters: 3 prizes**

**SPORT Winners of the Running RACE: 3 first**

**SPORT Winners of the swimming competition: 3 first**

**And FAREWELL PARTY**



