



IAP Institute of Applied Physics

UM6P Institute of Applied Physics

The Institute of Applied Physics is dedicated to pioneering research and education in physics.

Theoretical and Condensed Matter
Physics

Crystal Growth

Defect engineering

Device Physics

Spintronics

Particle Physics

Particle and High Energy Physics

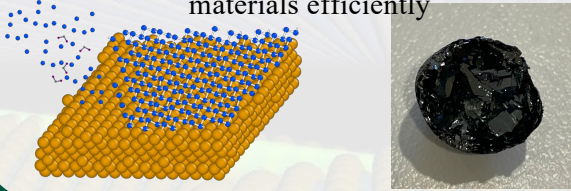
IAP's Role in Global Physics Community



Theoretical and Condensed Matter Physics

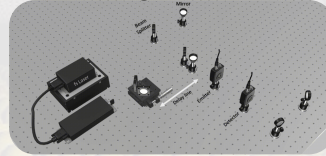
Crystal Growth

At IAP, we specialize in refining Chemical Vapor Deposition (CVD) techniques, adjusting substrate choice, precursors, temperature, and pressure to synthesize defect-free, large-scale 2D materials efficiently



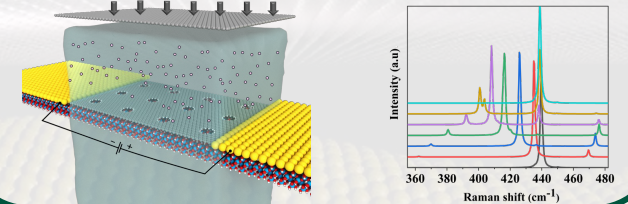
Terahertz Photonics

At IAP, our focus in terahertz photonics revolves around the interaction between pulsed lasers and nanomaterials. We're pioneering new designs for pixelated, pulsed terahertz imaging systems, with applications across security, telecommunications, agriculture, and healthcare.



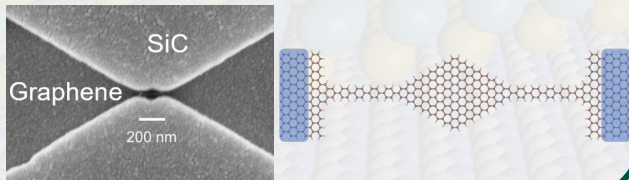
Defect engineering

At IAP, we use several simulation techniques to study and tailor defects in graphene and other 2D materials, aiming to harness their full potential for diverse applications.



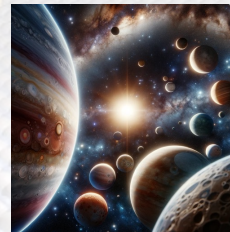
Device Physics

Within IAP, we also study quantum phenomena in nanoscale materials, including 2D graphene and phosphorene, for use in advanced sensors and photodetectors, utilizing DFT and 7 Tesla magneto-optical transport methods



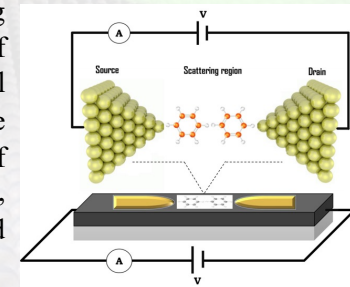
Cosmology

At IAP, cosmology research delves into the mysteries of the universe, from the Big Bang to dark matter. The institute's cosmologists are at the forefront, contributing to our understanding of the cosmos through innovative theories and observations.

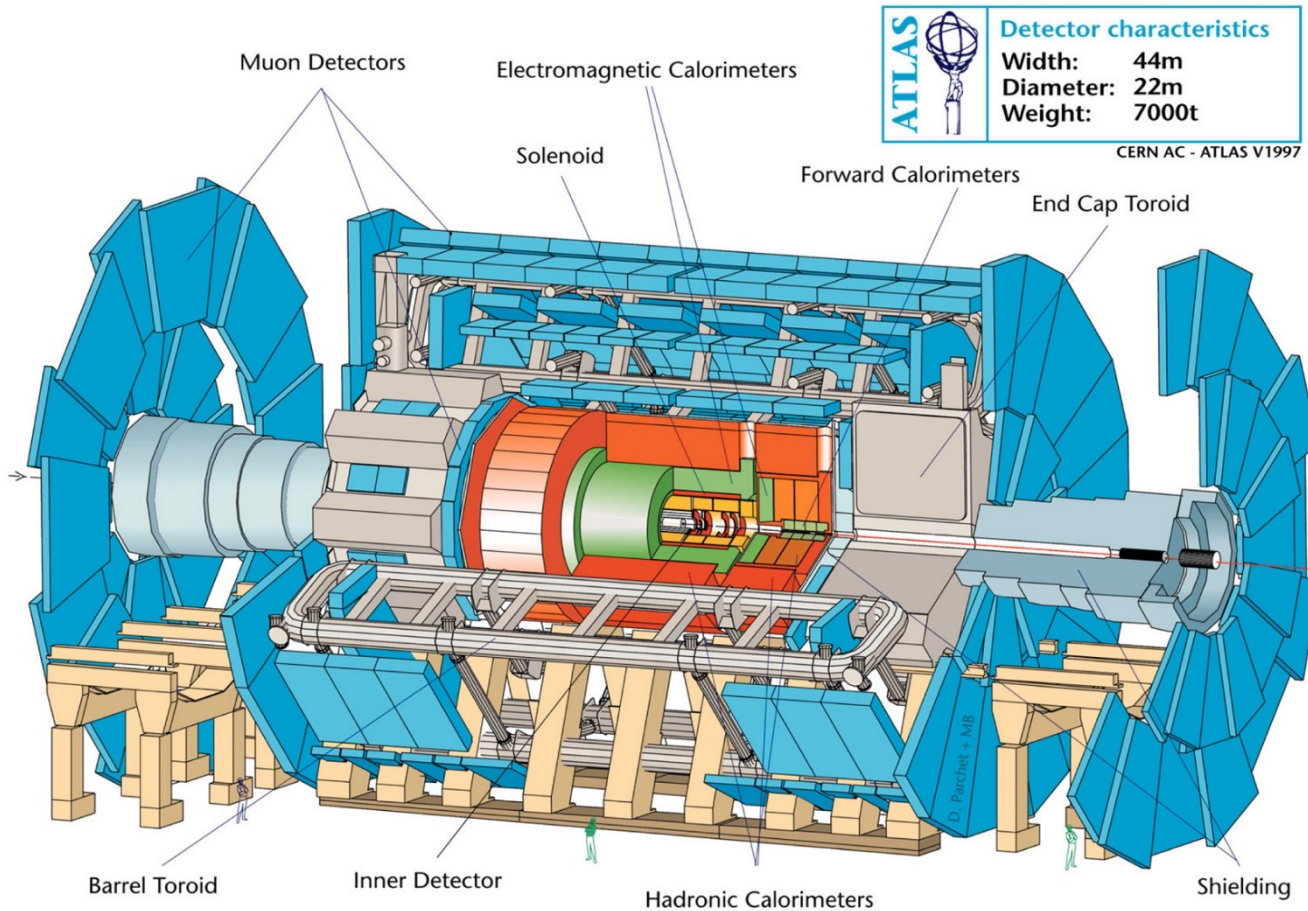


Spintronics

At IAP, we are advancing the development of chemical and biochemical sensors for precise detection and analysis of DNA, RNA, and proteins, contributing to rapid biomolecule identification for diverse applications.



ATLAS



Detector characteristics	
Width:	44m
Diameter:	22m
Weight:	7000t

CERN AC - ATLAS V1997

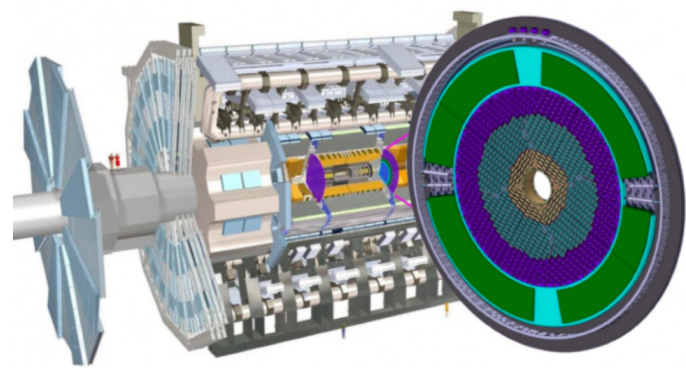


181 Institutions
3000 Scientific authors, 1200 PhD students
41 Countries



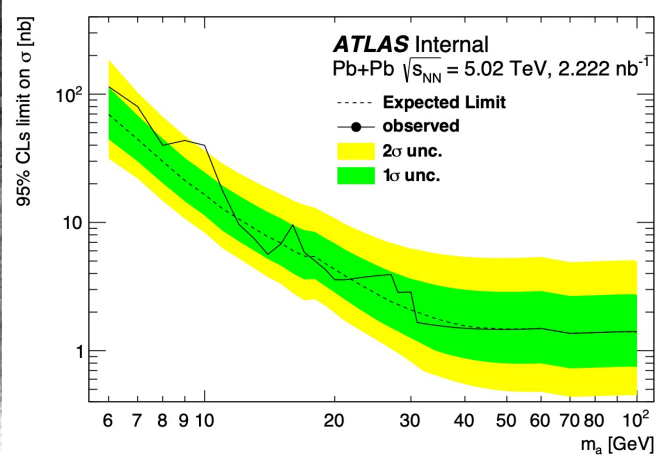
The ATLAS High Granularity Timing Detector

- **Software Development for HGTD Data Acquisition:** the development of software for the data acquisition system associated with HGTD.



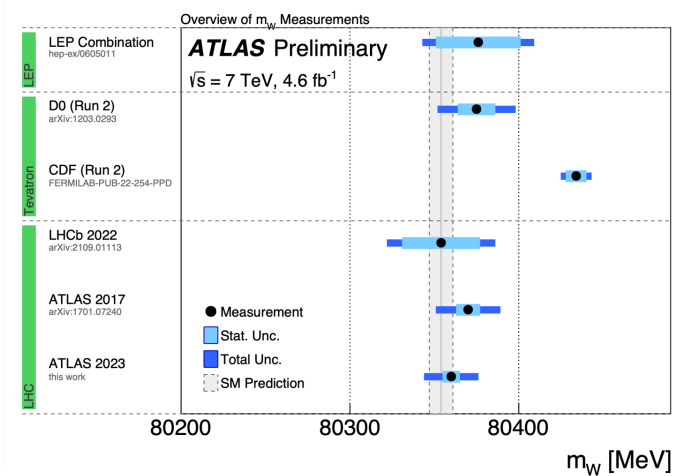
Measurement of light-by-light scattering

- **Statistical Analysis and Data Unfolding:** Enhancing the understanding of detector effects through meticulous statistical analysis and data unfolding techniques.
- **Data Fitting and Axion-like Particle Search:** Utilizing theoretical models to accurately fit experimental data and engaging in a targeted search for axion-like particles.



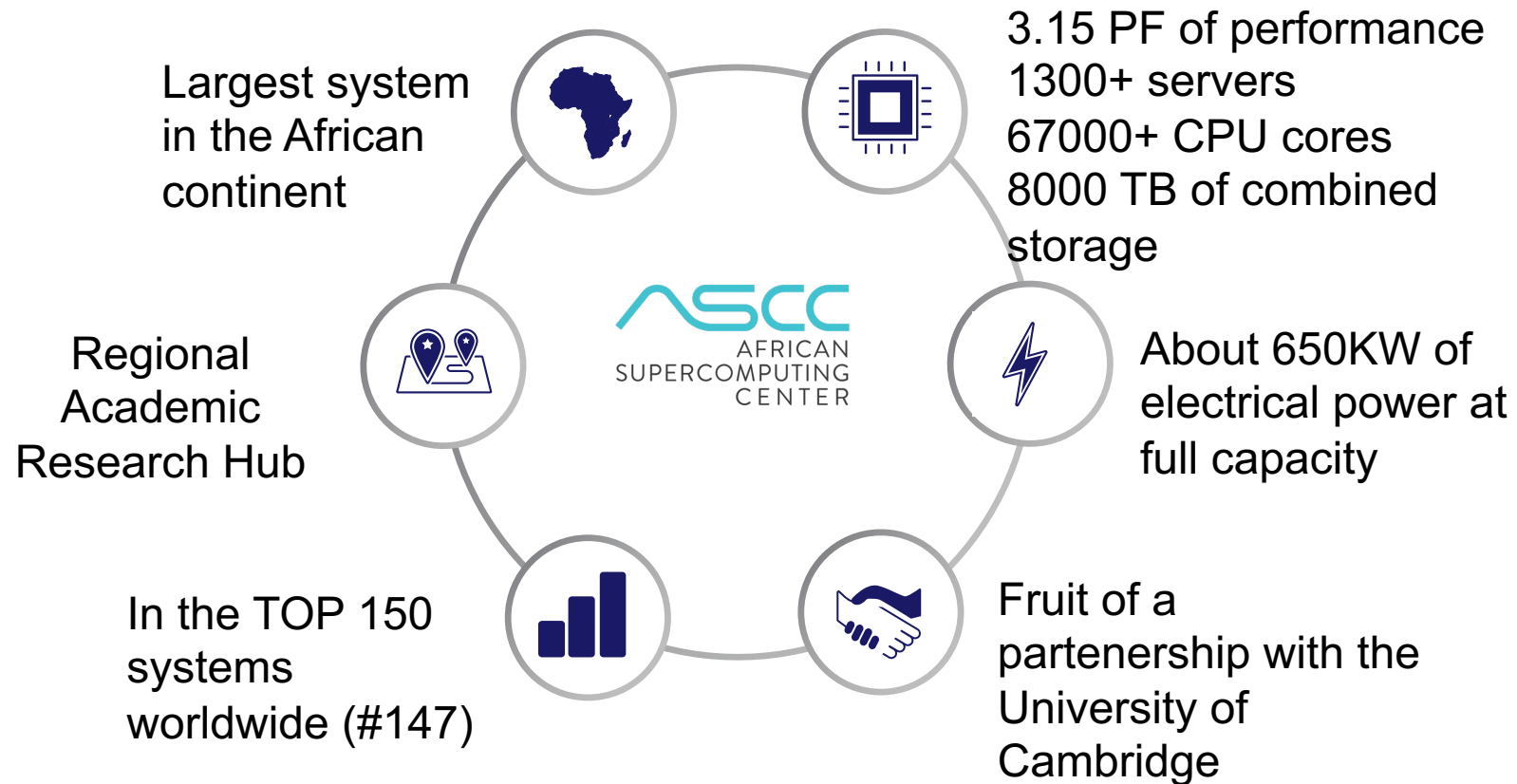
Measurement of the W boson mass

- **Reducing Experimental Uncertainties:** Focusing on minimizing experimental uncertainties, including improvements in electron calibration.
- **Advancements in QCD and PDF Uncertainties:** Focusing on reducing uncertainties associated with Quantum Chromodynamics (QCD) and Parton Distribution Functions (PDF) to improve the accuracy of W boson mass measurements.



African SuperComputing Center

ASCC



ASCC: What is the vision?



Provide a world-class capability in advanced computing

- Support Data-Driven initiatives and research projects
- Attract talent and researchers to universities in the region
- Increase the competitiveness of research and innovation in the region



Set the pace for Innovation using Data Analytics

- Create a Data Analytics community (National and Regional levels)
- Accelerate AI/ML initiatives



Regional Academic Research Hub

- Create a hub between the industrial and academic worlds
- Exchange ideas, create synergies and collaboration opportunities

National ATLAS Tier2

FR-cloud

FR-cloud groups Tier 1 and several Tier 2 and Tier 3 sites for operational issues

- countries : China, France, Japan, Morocco, Romania
- Tier 1 site : IN2P3-CC
- Tier 2 sites : BEIJING-LCG2, GRIF-IRFU, GRIF-LAL, GRIF-LPNHE, HK-LCG2, IN2P3-CPPM, IN2P3-LAPP, IN2P3-LPC, IN2P3-LPSC, RO-07-NIPNE, RO-14-ITIM, RO-16-UAIC, TOKYO-LCG2, UM6P

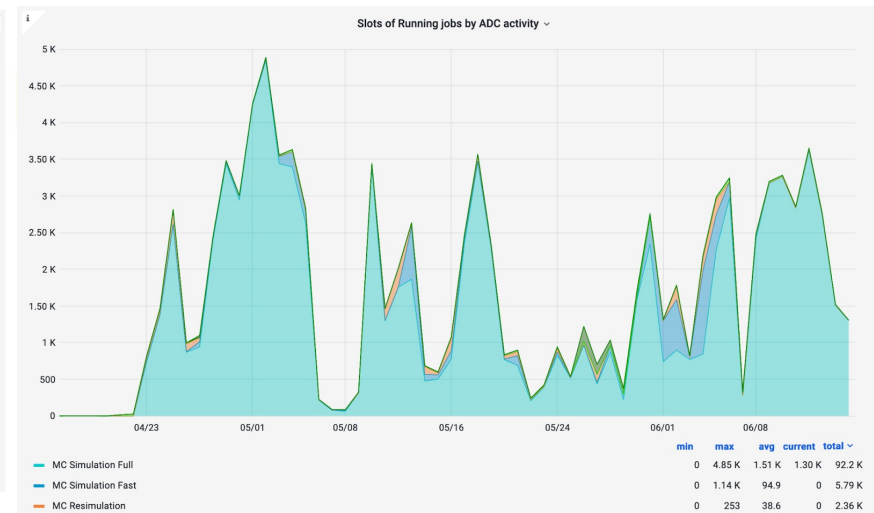


Site monitoring / Site Status Board Overview

Tier All Country All Cloud FR Federation All Site All

Choose Panel Fast Live Overview

	CRC	DDM	DDM Transfer Efficiency	SAM3 Site Availability	Panda Queue Status	Jobs Efficiency	Frontier Squid Status	GGUS tickets
	Downtime Status	Downtime Status	source	destin...		analysis	product...	
BEIJING-LCG2	OK	OK	98.5%	OK	OK	97.5%	OK	0
FR-ALPAMED-LPC	OK	OK	98.5%	OK	OK	97.5%	OK	0
GRIF-IRFU	OK	OK	97.2%	OK	OK	98.2%	OK	0
GRIF-LAL	OK	OK	98.4%	OK	OK	94.2%	OK	0
GRIF-LPNHE	OK	OK	98.1%	OK	OK	97.2%	OK	0
HK-LCG2	OK	OK	97.8%	OK	OK	95.2%	OK	0
IN2P3-CC	OK	OK	98.3%	OK	OK	98.2%	OK	0
IN2P3-CPPM	OK	OK	98.1%	OK	OK	98.2%	OK	0
IN2P3-LAPP	OK	OK	98.2%	OK	OK	98.2%	OK	0
IN2P3-LPC	OK	OK	98.7%	OK	OK	98.2%	OK	0
IN2P3-LPSC	OK	OK	98.2%	OK	OK	98.2%	OK	0
RO-07-NIPNE	OK	OK	98.2%	OK	OK	98.2%	OK	0
RO-14-ITIM	OK	OK	98.2%	OK	OK	98.2%	OK	0
RO-16-UAIC	OK	OK	98.2%	OK	OK	98.2%	OK	0
TOKYO-LCG2	OK	OK	97.8%	OK	OK	98.2%	OK	0
UM6P	OK	OK	98.2%	OK	OK	98.2%	OK	0



Welcome to the T2 site of University Mohammed VI Polytechnique (UM6P),

Ben Guerir, Morocco

<https://ascc.um6p.ma/>

<https://atlas-cric.cern.ch/core/experimentsite/detail/UM6P/>

Packaging and SMT Lines (Cleanrooms Class 1000 and 10000)



Plans

- Contribute with the Moroccan cluster to the to the **AC-LGAD-TOF** tasks force.
- Provide CPU for ePIC
- Simulation for **Performace study**.
- **DAQ, FPGA.**