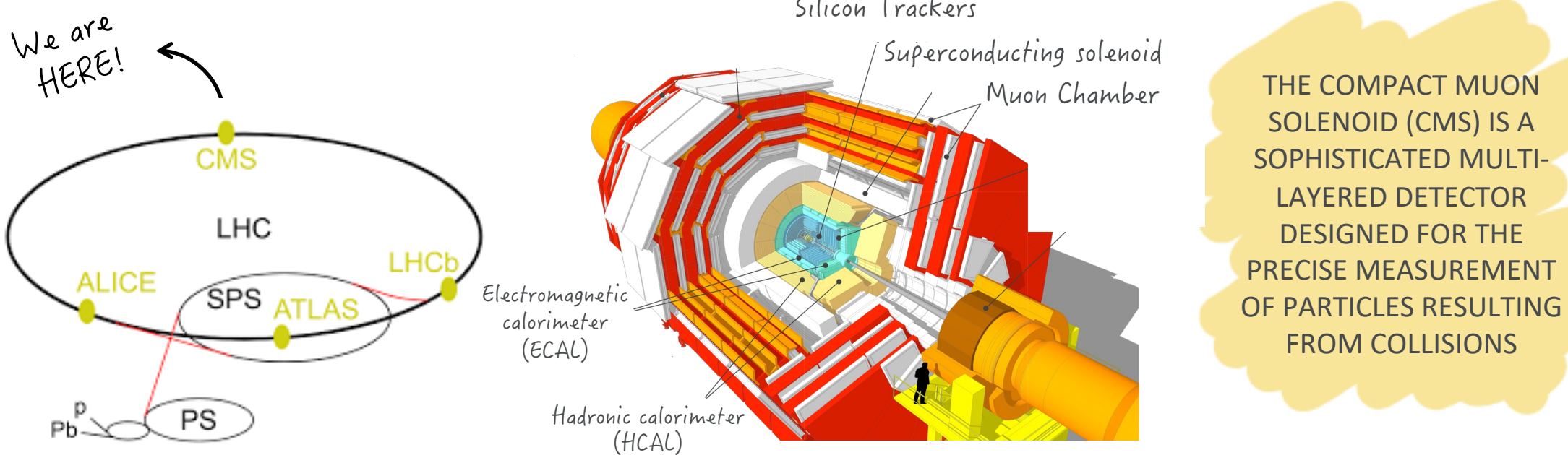


PHYSICS WITH CMS AT LHC



THE HIGGS BOSON



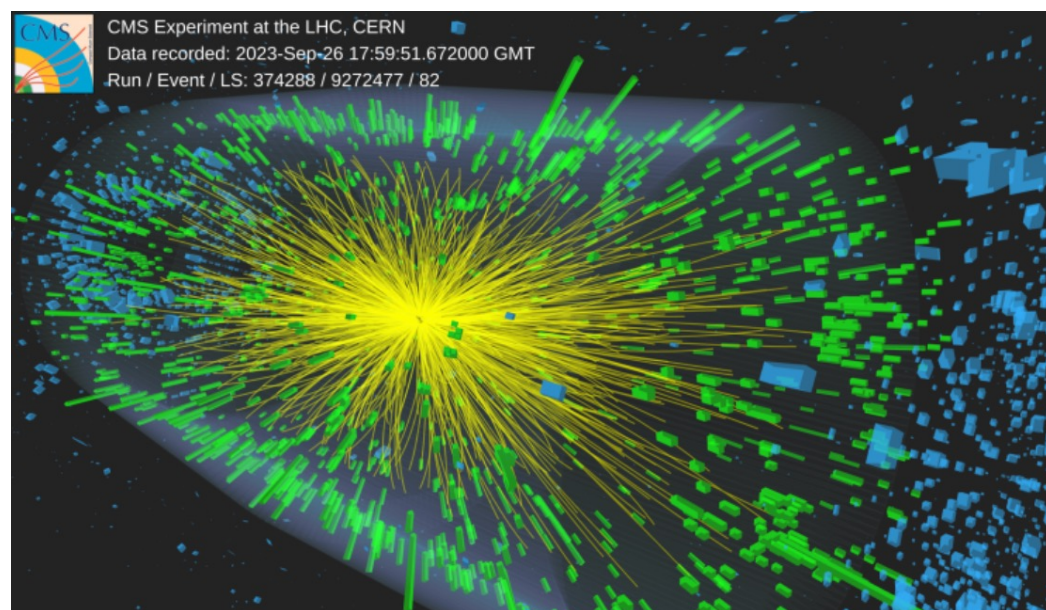
THE HIGGS PARTICLE WAS A SIGNIFICANT DISCOVERY AT THE LHC. NEVERTHELESS, LINGERING QUESTIONS PERSIST REGARDING ITS BEHAVIOR: DOES IT CONFORM TO THE EXPECTATIONS SET BY THE STANDARD MODEL? ARE THERE OTHER PARTICLES AKIN TO IT WITH SIMILAR PROPERTIES? **NEW ANALYSES ARE HELPING US UNDERSTAND ITS BEHAVIOR BETTER!**

SEARCH FOR PHYSICS BEYOND THE STANDARD MODEL

THERE ARE STILL MANY UNANSWERED QUESTIONS IN PHYSICS, AND THE LHC IS THE PERFECT TOOL TO **EXPLORE UNCHARTED TERRITORIES**. NEW PARTICLES CAN BE DIRECTLY PRODUCED AT LHC OR THEY CAN MODIFY KNOWN PROCESSES AND THEREFORE BE DISCOVERED IN AN INDIRECT WAY. THESE STUDIES COULD PROVIDE INSIGHTS INTO THESE INTRIGUING OPEN QUESTIONS. **DISCOVER THE UNKNOWN WITH US!**

LHC CAN ALSO ACCELERATE HEAVY IONS. ANALYZING DATA FROM THESE COLLISIONS PROVIDES UNIQUE OPPORTUNITIES TO STUDY STATES OF MATTER SIMILAR TO THOSE OF THE EARLY UNIVERSE. INDEED, WE CAN CREATE THE QUARK- PLASMA: A DENSE SOUP OF PARTICLES THAT EXISTED **SHORTLY AFTER THE BIG BANG**

HEAVY IONS



Real event from CMS point of view!

What will you do?

- CONTRIBUTE TO A DATA ANALYSIS
- DEVELOP NEW ALGORITHMS
- PROPOSE YOUR STRATEGIES IN THE CONTEXT OF A REAL HEP EXPERIMENT AT CERN

AND MUCH MORE

What will you learn?

- MACHINE LEARNING ALGORITHMS
- STATISTICAL METHODS
- TO PRESENT YOUR WORK IN SCIENTIFIC MEETINGS

Join CMS for your thesis!

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