30 YEARS OF HEAVY ION PHYSICS…

…and 15 years since announcing evidence for a New State of Matter. Indeed Heavy Ion Physics has come a long way. This is demonstrated by the numerous and impressive attendance at today's anniversary celebration; an event that attracts the attendance of both pioneers of the field and active proponents of current research. I am very pleased to see so many experts responding to the invitation to this memorable occasion and I send a warm welcome to all of you. Please also accept my apologies for not being with you due to prior commitments.

Heavy Ion Physics is indeed a very remarkable branch of Nuclear Physics. Sometimes the association to Nuclear or Particle Physics is rather arbitrary and varies regionally depending on established traditions or funding scheme. For Heavy Ion Physics there is a good reason. This is because heavy ion physics combines aspects of many fields of physics, including particle physics and statistical physics. Statistical physics has been applied in earnest since the ISR where correlation studies and measures were developed and complemented by assessments of fragmentation both of which linked to the temperature of the system. In Heavy Ion Physics we are looking at a multi-particle system and we are often using individual particle species for characterisation. The language for theoretical description of the observed phenomena is in place and has made big strides over the past years.

Yet, we struggle to make quantitative predictions of new experiments and running conditions. Often we straddle several theoretical pictures to describe experimental observations. Heavy Ion Physics has the privilege of not resorting to a Standard Model although we claim to having understood the fundamental ingredients of the physics. So let me claim that Heavy Ion Physics is driven by experiments; the principle of comparing data to data is prevalent and applied to particle species, collision energy, multiplicities and topologies.

Incidentally I believe that it is this aspect of Heavy Ion Physics being largely observational and empirical rather than theory-driven what generated some cultural differences between the fields of Particle and Heavy Ion Physics. Cross communication was difficult.

Then came RHIC.

Then came the LHC.

At the time of proposals for LHC experiments Heavy Ion Physics was almost exclusively allocated to one experiment, ALICE. Very soon, however, also

ATLAS and CMS realised that they had a veritable contribution to the programme. Last but least even LHCb joined the effort and participates actively in the measurements. The discussions on attribution of beam configurations are as lively and difficult as one would wish for the field. And every experiment comes with a special aspect: ALICE inclusively with a particular emphasis on low pt-behaviour, ATLAS and CMS with hard processes including heavy quarks and LHCb with its particular rapidity coverage. The interest comes from the variety of operating conditions the LHC is able to offer: ion-ion collision, proton-ion collision and proton-proton physics for reference.

Let me briefly mention instrumentation. Heavy Ion experiments have set new standards; later today you will hear a presentation of tracking detectors that come very close to the ideal of a high resolution sensor of close to zero mass. The technology is new and will be exercised for the first time at the LHC. TPCs have to withstand rates that are hitherto unseen. Finally, computing for Heavy Ion experiments was almost deemed unsolvable when the quark gluon plasma was established.

What next?

The Heavy Ion programme for the LHC has been clearly defined and is the backbone of the justification of the upgrade of the ALICE detector. It is a long haul programme and I would not be surprised if eventually we celebrate 30-years of Heavy Ion Physics at the LHC.

Today there is ample opportunity for reminiscence; thirty years are to be covered and an outlook into the future will be given.

I wish you a most enjoyable afternoon and evening.

Eckhard Elsen