

# Holmganga: CLASH Workshop



**Monday 26 June 2023 - Friday 30 June 2023**

**Helsingborg, Sweden**

## Scientific Programme

## General Discussion

### Jet quenching

Why don't we see jet quenching in proton--proton collisions?  
How important is system size for jet quenching?  
What observables are particularly sensitive to jet quenching?  
How do these observables depend on system size, particularly for small systems?  
What observables are easy to compare between theory and experiment?

### Particle production & freeze-out

Does strangeness enhancement come from canonical suppression, strings or something else? Can we find an observable for this?  
Do we have a common or flavour-dependent freeze-out in small systems? What could be a reasonable check for this?  
How reasonable are fits from models (with freeze-out) to small systems?  
What can we learn from charm, QCD couplings and charm balance?  
Freeze-outs: are there single or multiple? Are they flavour dependent? Are they strangeness dependent?  
Radial boost: How reliable are blast-waves? Are there any other ways?

### Correlations & fluctuations

What is the origin of non-zero  $v_n$  in proton--proton (and proton--lead) collisions?  
Are fluctuations only due to initial stages, or are they affected by the expansion of the QGP?  
Can we separate QGP contributions to fluctuations from initial stages?  
Do/should  $v_n$  fluctuations in proton--proton collisions show similar trends as in lead--lead collisions?  
What are possible sources of long-range correlations in proton--proton and proton--lead collisions?  
Balance function: Is conservation of colour charges local or global? Flow UPC/DIS?

### CGC versus Lund strings

What are experimental and phenomenological consequences of CGC medium modifications?  
What is the "smoking gun signature" of saturation and can we observe it?  
How can we incorporate the CGC in Pythia? How does the Lund string picture differ from the weak coupling/CGC picture?