

# Experiment Proposal: AR\_2012\_No9

Title	Author/Spokesperson
<b>Test of QFW electronics with SEM grid and fast extraction</b>	<b>A. Reiter (1431)</b> <b>M. Witthaus (2447)</b>

## Summary & Aim

- **This test is part of the R&D for FAIR: New QFW electronics together with pulse stretcher**
- Detector serves for comparison with scintillating screen investigations
- SIS18 beam & fast extraction
- Requested beam time: 1 shift
- Recorded data: Wire signals as function of particle number and QFW parameters

## Machine parameters

<b>Machine</b>	SIS18, slow extraction
<b>Mode</b>	B-exp
<b>Exp. area</b>	HTP
<b>Ion species</b>	Any
<b>Beam energy</b>	300 – 800 MeV/u, in principle any
<b>Spill length</b>	Fast extraction (h = 1 or h= 4)
<b>Particle number</b>	10 <sup>4</sup> – 10 <sup>9</sup> per spill
<b>Repetition rate</b>	~ 0.1 Hz or higher
<b>Shifts</b>	1 shift
<b>Beam Time Period</b>	Machine experiment (B-exp) September 2012
<b>Health &amp; Safety</b>	No concerns

## Experiment procedure

After setup of beam at end of HTP line, the following series of data are taken:

- SEM grid response as function of particle number (one beam energy)
- Reference detector at HTP: RT and FCT
- Test of QFW electronics and pulse stretcher

## Experiment Setup

<b>Exp. area</b>	HTP, in front of beam dump	
<b>Description of setup</b>	<ul style="list-style-type: none"> <li>• SEM-type profile grid</li> <li>• <b>Detector position behind screen ladder (???)</b></li> <li>• Distance to beam dump: ~50-100 cm</li> </ul>	
<b>Duration of setup</b>	<ul style="list-style-type: none"> <li>• Mounted only during beam time</li> </ul>	
<b>DAQ &amp; Electronics</b>	<b>Long cable to Atomic Physics container (LAN???)</b>	
<b>Software</b>	Stand-alone QFW system setup; FESA class readout Industrial PC (Linux)	
<b>Trigger</b>	Flat top / extraction	
<b>Experiment Preparation / Required support</b>		
<b>Estimated amount of time, manpower and equipment</b>		
<b>Estimates or simulations</b>	4 h	Signal estimate A. Reiter
<b>Mech. Workshop</b>		Not required
<b>Beam Line Installation</b>	8 h	H. Graf (A. Reiter)
<b>Electronics &amp; DAQ</b>	2 days	Setup of electronics and tests (A. Reiter / M. Witthaus / EE group)
<b>Control System Integration</b>	done	Stand-alone QFW readout
<b>On-site tests</b>		
<b>Modification of exp. area</b>	(Yes)	Pneumatic actuator in place at HTP; move forward next to screen ladder
<b>Dismantling of setup</b>		Detector should remain until full FESA readout has been tested.
<b>Remarks &amp; Comments</b>		

**OPEN ISSUES & QUESTIONS**

- **Prüfung Netzwerkanschluss and Beschl.-Netzwerk!**
- **RC-Glieder steckbar!**