

 		<b>No.:</b> EDMS-ID: 3195512 v.1
<b>Minutes</b>		
CERN-GSI collaboration meeting on MM systems development  Date: 2024-11-12		<b>Name:</b> T. Parfyo
<b>Participants:</b>	Carlo Petrone (CP), Matthias Bonora (MB), Vincenzo Di Capua (VC), Taras Parfyo (TP), Anna Szwangruber (ASz), Vassily Marusov (VM), Alexander Bleile (AB)	
<b>CC:</b>	Participants, Christian Roux, Kei Sugita, Vincenzo Di Capua, Marco Buzio, Stephan Russenschuck	

<b>Agenda</b>	<b>TOP 1:</b> Status of the CERN-GSI collaboration agreement <b>TOP 2:</b> Single Stretched Wire/Vibration Wire System: 2.1 Mechanics 2.2 Controls 2.3 Metrology <b>TOP 3:</b> Data exchange <b>TOP 4:</b> Future steps
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No.	Who	Type	Topic
<b>TOP 1</b>			<b>Status of the CERN-GSI collaboration agreement</b>
	CP ASz	I A	CERN reviewed the collaboration agreement from GSI and made minor edits. Document was submitted to the CERN legal office for a check.  GSI will review these edits and approve them, then provide feedback on the edits to CERN. After that, the contract will be forwarded to CERN and GSI responsible for the final signatures.  Contact person for document processing at CERN side - Germana Riddone
<b>TOP 2</b>			<b>Single Stretched Wire/Vibration Wire System</b>
	TP	I	GSI and PI held a technical meeting on 23.10.2024 regarding the production of the motion system for the SSW/VW system. The meeting covered the following topics: mechanics – linear platforms for movement and granite supports, controllers for platform control and string tension, metrological measurements of the assembled system – 1D and 2D calibration, system cost, spare parts, and delivery. The delivery time for the motion system is up to 40 weeks, with a cost of less than €221,000, and for GSI, this will fall under a national tender.

No.	Type	Who	Topic
<b>2.1</b>			<b>Mechanics</b>
	TP	I	PI is restarting a production line based on the HPS-170 translators specifically for the CERN-GSI order. The technical specifications of the new translator's match those of the HPS-170 translators, with a linear encoder and a travel range of 155 mm. (for more details, see PI's commercial proposal).
	MB	I  Q	On previous HPS-170 translators, a linear encoder was used. In the event of a position error, it was necessary to reduce tension and then return the translator's working platform to the home position, located at one end of the translator's working range.  Could an absolute encoder be used in the new translators?
	TP	A	PI has translators with a home position in the middle of the working range. I'll ask them how this is implemented and could it can be applied to the new translators.
<b>2.2</b>			<b>Controls</b>
	TP	I	PI doesn't work anymore with Delta-Tau series Geobrick controllers, which were previously used in CERN SSW systems. For GSI application PI proposes an ACS G-901 controller. The G-901 controller features the advanced ACS SPiiPlusEC motion controller and EtherCAT master. Integrated drivers for stepper motors and corresponding sensors are included. The four linear stages will operate in closed-loop stepper mode, and an additional fifth driver will be provided for wire tensioning (for more details, refer to PI's commercial proposal).
	CP	Q	CERN is interested in purchasing of one such controller only if the new controller can operate with existing translators HPS-170.
	TP	A	Check with PI: <ul style="list-style-type: none"> <li>- Do the old HPS-170 work with a proposed ACS G-901 controller</li> <li>- What is an expected price and a delivery time for one ACS G-901 controller with five axis control?</li> </ul>
<b>2.2</b>			<b>Metrology</b>
	TP	I	PI will provide a metrological report with detailed measurements of positioning accuracy, angular errors, flatness, perpendicularity, etc. for each translator. At PI side, 1D positioning measurements of the stages are performed in an XY setup mounted on granite brackets using a laser interferometer: 1D accuracy < 1µm. PI proposes to do 2D positioning accuracy mapping after delivery of the stages to from PI to GSI. A dedicated PI-subcontractor will be used. The guaranteed 2D accuracy is: +/- 2µm. PI offers to perform the calibration at GSI, directly at the workplace, before the system is used in magnetic measurements. This reduces the risks of damage to the system during transport, packaging, unpacking, etc.
	CP	D	The 2D calibration should be performed after the complete assembly of the system and tests at CERN, when it is fully assembled and delivered to GSI.
<b>TOP 3</b>			<b>Data exchange</b>
	TP	I	A document exchange structure has been created in the EDMS <a href="https://edms.cern.ch/ui/#/master/navigator/project?P:100246823:1494977379:subDocs">https://edms.cern.ch/ui/#/master/navigator/project?P:100246823:1494977379:subDocs</a>
	CP	D	Add a folder named "shaft" under the design rotating coil folder.

No.	Type	Who	Topic
			Add a folder "Support structure" under the SSW Design folder.
	TP	I	I will add this section to the EDMS structure.
<b>TOP 4</b>		<b>Future steps</b>	
	CP	Q/A	GSI (V. Marusov and A. Bleile) should prepare presentations on the measurement rotating shaft and the anti-cryostat for SIS100?
		I	Next technical meeting agreed for 4th of December at 10:00 AM.

**References/Comments**

Name	Date	Comment	Reference to

**History**

Version	Date	Description	Author	Review / Approval
1.0	12-Nov-24	draft version	T. Parfylo	