

WBS	TASK	SUB-TASK	
Tools	Data Handling	Procol to operate multiple qubits with ZCU	
		Software for triggering, waveforms handling; it must include interface with a database	
		Analysis software with waveforms processing (C++) and high level analysis (Phyton)	
	Simulation software	Setup G4CPM for phonons simulation	
		Validation of simulation against data	
		Guidance for new design using simulation	
	Fridge Upgrade	Production and characterisation of JPA matching the frequency of SQMS qubits	
		Commissioning in the fridges used for the measurements (INFN RM, INFN LNGS, neutron beam facility)	
	Qubits As Detectors	Optical Calibration	Design, procurement, installation
			Test with known detector (microwave resonators CALDER/BullKID - like)
Self-tagging source		Choose source for calibration that features a monochromatic peak low E, high intensity	
		Design source + sensor	
		Cryogenic test with bolometric detector	
		Integration of readout for the sensor of the source and qubits	
Performance		Measurements of present qubit (SQMS Round Robin - like)	
		Test with radioactive source	
		Test with optical source	
	Test with self-tagging source		

Detector Upgrade	Remove ground plane	RF Simulation-guided design
		Fabrication @ SMQS
		Test
	Novel design	RF Simulation-guided design
		Fabrication @ SQMS
		Test
	Neutron Beam	Equipment of the existing cryogenic facility on neutron beam
		Commissioning with known qubit chip
		Calibration with low-E recoils
	Package	Radioassay
		Background modelling
		Material Selection
		Package Commissioning
Impact	Particle Physics	Perspectives for low energy dark matter
		Perspectives for single electron detection
	Quantum Computing	Fault detection in quantum circuits