



WP12 Closing Remarks

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WP12 4th (and final) Annual Review Meeting, NCBJ, Poland





Oliver
Kugeler





EuCARD²

Twitter WP12 Campaign



#EuCARD2 and #ASTeC to follow

28 tweets completed

6 re-tweeted

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Now need to do your job back home and propagate further!



- Many thanks to our NCBJ hosts for the excellent hospitality!
 - Robert fundamentally.
 - Plus all of the NCBJ tour guides – *it's really impressive to see the breadth of research being undertaken, **would never have dreamed to be standing on top of a nuclear reactor!***
- Many thanks to all Task Leaders and Speakers for a series of really impressive talks!
- Really enjoyed this final review and the fact we have continued to generate significant results!



**Thank
You!!!**



Impressive Progress Again!

Task 12.2 SRF Thin Films

- **HIPIMS deposition demonstrated** overcoming peel-off issues and first cavity deposition achieved (CERN)
- Copper substrate migration issues in achieving A15 SC phase for Nb₃Sn being investigated (CERN)
- **Optimised ALD achieved for AlN with TMA precursor**, more work ongoing for NbN (INP-Grenoble)
- **Highest T_c ever reached for SRF thin film of 17.6K** with CVD multi-layer (INP-Grenoble)
- **First experimental validation** of insulating layer thickness for NbN multilayer (CEA)
- **QPR at HZB Berlin has been tested** and trapped magnetic flux issues are being investigated (HZB)

Task 12.3 High Gradient NC

- **High gradient technology important for the future EU strategy**, with CLIC identified as a CERN priority (CERN)
- CLEAR (old CALIFES) now **available for external utilisation** at CERN (CERN)
- **Optimisation of new high gradient damped detuned cavity** using novel 2D interpolation achieved (UMAN)
- **First high efficiency kladistron prototype being built** in collaboration with Thales (CEA)
- **New RF interferometer for xband crab cavity sync developed**, achieving close to 0.02deg (ULAN)
- Optimised vacuum breakdown characterisation on XBox @ CERN used to pinpoint breakdown location (UU)

Task 12.4 SRF HOM Diagnostics

- **Extremely fast/accurate Generalised Scattering Matrix** analysis for complex, long linac structures demonstrated (UMAN)
- Beam phase and alignment from XFEL 1.3GHz cavity HOMs, **theory agrees very well with experiments**. (UMAN/DESY)
- **XFEL HOM electronics** being developed (DESY)
- State Space Concatenation technique **demonstrated high performance optimisation** of long linac chains. (UROS)

Task 12.5 RF Photocathodes

- **New Hi-Rep-Rate RF gun and copper PC R&D** programme at Daresbury, first **high power commissioning starts today!** (STFC)
- Surface deposition and process flattening **enabled ~1um surface roughness**, ready for SRF cavity tests. (NCBJ)
- **Achieved >3x10⁻⁴ QE at recent BNL test.**
- **Operational performance of Mg PC with QE of 1e-3 verified on ELBE! Pb/Nb PC laser cleaned NCBJ PC not affected by long term radiation exposure (HZDR)**



Really nice to see

- Even more Phd and post-doc students providing high impact in a number of areas.
- More Phd students to qualify:
 - Thomas Fligsen (UROS) – Monograph produced
 - Nicolas Shipman (UMAN) – Monograph produced
 - **Ben Woolley (ULAN) – Graduated and monograph to be produced**
 - **Raphael Kleindienst (HZB) – Monograph to be produced**
 - **Sebastian Kechert (HZB) – Graduated and monograph to be produced**
 - **Sunil Patel (STFC) – To graduate soon**
 - **Liangliang Shi (DESY) – To graduate soon**
- Our results continue to generate journal publications, Accelerating News articles and Monographs:
 - **Keep up the excellent work!**
 - Remember to include the correct Accreditation for all publications – IPAC17, SRF17 and any journals!



- Many thanks to all for a very productive and enjoyable review!
- Looking forward to seeing many of you again for the final EUCARD-2 Annual Review in 2 weeks @ Strathclyde University.
- It has been a real pleasure working with you all for the past 4-years!
 - **Note: We still have a lot to do, to finish our programme!**
- Have a safe journey home!



