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# WP15 - Thin Film for Superconducting RF (TF-SRF)

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WP15 coordinator

The 8<sup>th</sup> WP15 Meeting,  
31<sup>st</sup> January 2019, by Vidyo

# List of milestones and deliverables

Type	Delivery date	Lead beneficiary	Related task/ <b>responsible</b>	Description	Status
M1	m1	STFC	Task 15.1	<b>1<sup>st</sup> WP meeting.</b> Analysing outcome from EuCARD2 and current state of the field, finalising a detailed plan for WP	<b>Completed</b>
M2	m6	INFN	Task 15.2	<b>First sample substrates cleaned at INFN for depositing at partners</b> (Report to StCom)	<b>Completed</b>
D1	m12	INFN	Task 15.2	Evaluation of cleaning process. <b>Report</b> defining an optimum cleaning and polishing procedure for surface preparation for Cu and Nb substrate for Nb coating minimising the substrate effect on the final film properties.	<b>Completed</b>
M3	m14	STFC	Task 15.3, 15.4	First samples exchanged (system 1 and 2) and deposited at partners (Report to StCom)	<b>Completed</b>
D2	m24	STFC	Task 15.3, 15.4	Evaluation of systems 1 and 2. <b>Report</b> on deposition, surface and structural analysis, DC and RF superconductivity evaluation of systems 1 and 2 (e.g. NbN and Nb <sub>3</sub> Sn) and Superconductor-Insulator-Superconductor (SIS) multilayer coating	<b>In progress</b>
M4	m26	HZB	Task 15.3, 15.4	First samples exchanged (system 3 and SIS) and deposited at partners (Report to StCom)	
D3	m36	HZB	Task 15.3, 15.4	Evaluation of system 3. <b>Report</b> on deposition, surface and structural analysis, DC and RF superconductivity evaluation of system 3 (e.g. MgB <sub>2</sub> ) and SIS multilayer coating	
D4	m46	STFC	Task 15.3, 15.4	<b>Final report</b> on thin film technology [46] Report summarizing the results on the evaluation of cleaning and coating procedures for highest $Q_0$ and $E_a$	

# Deliverable D15.2: Evaluation of systems 1 and 2

- Report (coordinated by Reza) to be submitted by **month 24** (30<sup>th</sup> April 2019)
  - **Deadline meaning: *ARIES leaders file it***
  - This requires that WP15 should submit a report to ARIES leaders 1.5 month before, i.e. on **15<sup>th</sup> March**
  - We will receive it back with comments by 31<sup>st</sup> March, and we should incorporate them in the report before 15<sup>th</sup> April.
- ***Progress:***
  - Sample Deposition:
    - Nb<sub>3</sub>Sn at STFC – **completed**,
    - NbN at Siegen - **likely to be completed (?)**
  - Surface characterisation - **likely to be completed (?)**
  - AC/DC SC characterisation at IEE – **Sent? Received? measured?**
  - Discuss the results, agree in conclusions, write the report - **Started?**

# QPR

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- **QPR:** *coordinated by Oliver Kugeler*
  - *Cristian Pira* – to coordinate polishing
  - *Reza Valizadeh* – to coordinate deposition
    - STFC readiness for deposition (Reza)
    - Siegen readiness for deposition (Michael)
  - *Oliver Kugeler* – to coordinate QPR measurements and sample exchange
    - *Oliver Kugeler* - readiness for measurements
    - *Walter Venturini Delsolaro* – readiness for measurements

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- Progress at RTU
    - **Task 15.2.**
      - Status of laser polishing - Artur Medvid
    - **Task 15.3. (not covered above)**
      - Status of laser annealing of Nb coated samples - *Artur Medvid*
      - Status of laser based film-substrate interface characterisation – *Aleksej Katasev*
  - **Task 15.4. (not covered above)**
  - Status of DC characterisation facilities
    - *Claire Antoine*
    - *Eugen Seiler*
    - *Oleg Malyshev*
  - Status of RF characterisation facility in ASTeC - *Oleg*

# 2<sup>nd</sup> ARIES Annual Meeting

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- **8-12 April 2018 in Budapest (Hungary)**
  - A lot of rooms pre-booked at the Hotel Mercure Korona, but the deadline for Hotel Registration is **7<sup>th</sup> February 2019**.
  - **8<sup>th</sup> April (Monday): WP14 Additive Manufacturing Workshop**
    - The idea is to bring together scientist and technologist from accelerator centres, aerospace and industry. **One of the main topics is superconducting material**. I was invited to give a talk, you all are very encouraged by WP14 coordinator to attend.
  - **9-11 April: plenary sessions.**
    - All participants are expected to attend.
    - I will give a talk as a WP15 coordinator.
    - The second 20' talk will be given by a Task 15.3 members (Reza to give a talk or to nominate a speaker) in a content of Delivery Report D15.2.
    - ARIES leaders are also asking for a focus subject for a common discussion at a plenary session. If you have any ideas, please let me know or contact directly to ARIES leaders.
  - **12<sup>th</sup> April (Friday): the 9<sup>th</sup> WP15 meeting.**
    - we will start at 9:00 and should be able to finish the meeting at 16:00
    - It is not shown in a programme yet.

# 19<sup>th</sup> International Conference on RF Superconductivity (SRF2019)

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- 30<sup>th</sup> June to 5<sup>th</sup> July 2019 at the Hilton Hotel in Dresden.
  - 18<sup>th</sup> January 2019 - Abstract submission opens
  - 15<sup>th</sup> February 2019 - Early abstract submission (to be considered as contributed orals) deadline
  - 1st April 2019 - Abstract submission deadline
- Cristian Pira will present a talk on behalf of WP15: “Impact of the Cu substrate surface preparation on the morphological, superconductive and RF properties of the Nb superconductive coatings”.
- Other talks are welcome, please let me know if you are going to present WP15 work and please don't forget to acknowledge ARIES.
- The 10<sup>th</sup> WP15 meeting will be organised as a satellite event to the SRF2019