



STREAMLINE

WP5

User engagement, training and outreach

D5.4

Summary and links to online training and video materials



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PROJECT DETAILS

PROJECT ACRONYM

STREAMLINE

GRANT AGREEMENT NO:

870313

PROJECT TITLE

Sustainable research at micro and nano X-ray beamlines

THEME

H2020-INFRADEV-2018-2020 Development and long-term sustainability of new pan-European research infrastructures

START DATE

15/11/2019

DELIVERABLE DETAILS

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WP5

WORK PACKAGE TITLE

User engagement, training, and outreach

WORK PACKAGE LEADER

Patrick Bruno

DELIVERABLE ID

D5.4

EXPECTED DATE

14/07/2023

DELIVERABLE TITLE

Summary and links to online training and video materials

DELIVERABLE DESCRIPTION

Report on online training and video materials

PERSON RESPONSIBLE FOR THE DELIVERABLE

Chiara Facoetti

NATURE

R- Report

P - Prototype

D - Demonstrator

O - Other

DISSEMINATION LEVEL

P - Public

PP- Restricted to other programme participants & EC:

RE – Restricted to a group

CO – Confidential, only for members of the consortium

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REPORT DETAILS

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FINAL

DELIVERABLE REPORT AUTHOR(S)

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1. Introduction and scope

STREAMLINE responds to the call H2020-INFRADEV-2018-2020 on Development and Long-Term Sustainability of New Pan-European Research Infrastructures and specifically the topic INFRADEV-03-2018-2019.

STREAMLINE is making key updates to the ESRF's scientific strategy, renewing its business plan and revisiting access modes, and creating a new service package, to capitalise rapidly on the new scientific opportunities and increased experimental capacities made possible by the ESRF-Extremely Brilliant Source (EBS) upgrade, for the benefit of both academia and industry. Training of users, existing, emerging and new, to encourage use of the new opportunities is an essential part of STREAMLINE. Moreover, the work and results enabled by STREAMLINE will be shared with other European light sources, many of which are planning EBS-type upgrades following the ESRF. All these activities will increase the sustainability of the ESRF itself and aid the European light source community in the rapid exploitation of their upgrades.

The project is a single beneficiary agreement with an EC contribution of just under 5 M€ and is composed of five work packages (WP):

- WP1: Project management, communication, dissemination and exploitation
- WP2: Business plan and facility access policies
- WP3: Update user tools and administrative procedures
- WP4: Build capacity
- WP5: User engagement, training and outreach.

Amongst the work packages, WP5 focuses on “*User engagement, training and outreach*”, which addresses the outreach and training required for both academic and industrial researchers to most effectively exploit the scientific opportunities of the ESRF-EBS, and the new access methods and services developed within STREAMLINE.

In this context, videos are used extensively as a training method of particular interest to users and future users, encouraging them to learn about a beamline or particular technique in preparation for an experiment at the facility. This is especially pertinent for mail-in services and remote access experiments where users need knowledge of the beamline and advice on sample preparation, and who will not receive hands-on training at the beamline.

STREAMLINE WP5 encompasses a task aiming at nurturing new communities (5.3), in addition to tasks dedicated to the creation of scientific training tools (5.1), an outreach and training programme (5.2), and a summary and links to online training and video materials (5.4).

Concerning D5.4, during the last 44 months (November 2019 – July 2023), a total of 74 online training and video materials have been linked to the ESRF website, inserted in a dedicated section on the STREAMLINE website and distributed via the ESRF YouTube channels as follows:

- 4 produced and published in 2020;
- 40 produced and published in 2021;
- 21 produced and published in 2022;
- 9 produced and published in 2023 (as per latest update – 1 August).

The 74 videos have generated a total of 22,479 total views. Several additional videos are still planned and will be prepared in the final period of STREAMLINE activity, including one specifically on promoting tomography towards industrial researchers.

2. Target audiences

The video training and outreach material produced under STREAMLINE targets three main audiences:

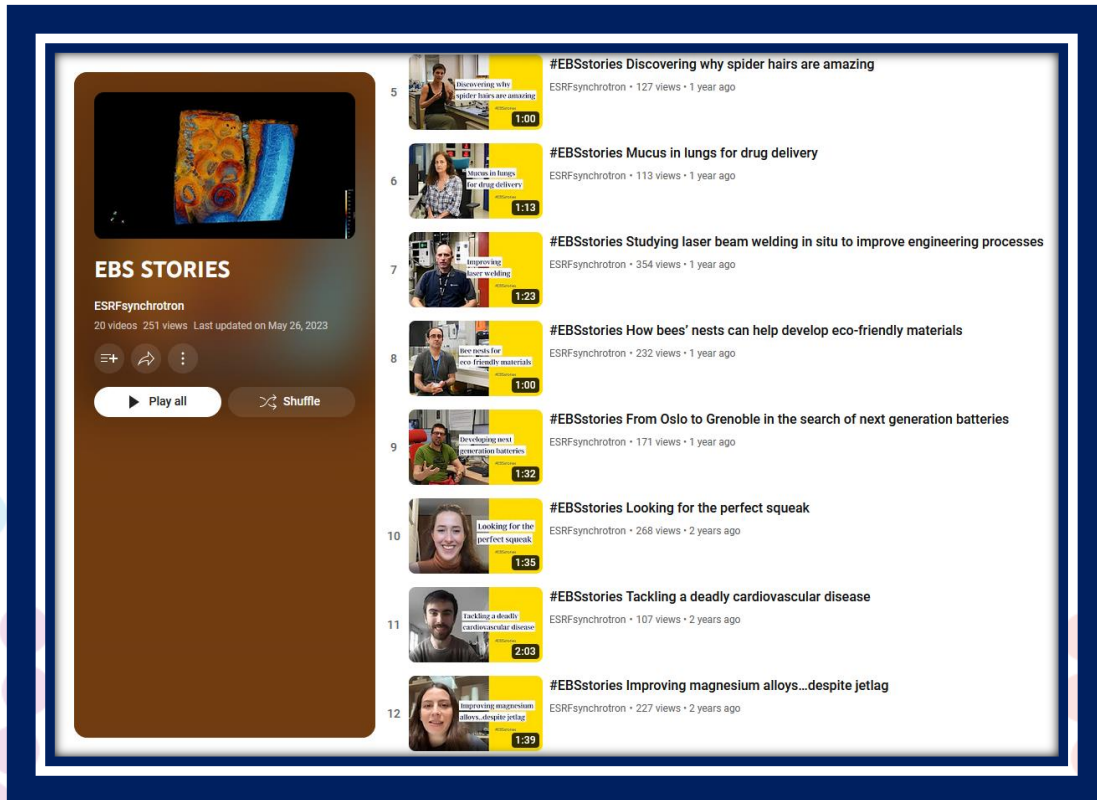
- **Wide scientific audience:** Professional-quality videos are used to introduce the ESRF-EBS and the four flagship EBS beamlines and to show what has been achieved with the new source, i.e. to advertise the new EBS capabilities. This project produced five videos, with one video focused on the EBS and four videos featuring the new EBS flagship beamlines and the revolutionary capabilities offered by these new instruments. They not only targeted a wider scientific audience, but they also represented an ideal accompaniment to a more in-depth presentation about the ESRF-EBS and the beamlines.
- **Potential future users:** The second series of videos featured individual beamlines and introduced users and future users to the complexities of running an experiment. The aim was to create tutorial-like presentations about each beamline and to provide an overview of the steps in an experiment, with advice from the scientists that run the beamline. These tutorials allowed a high-quality learning experience on the ESRF techniques available to users, their application, experiment design and an introduction to the beamline environments and their operation. The use of tutorials reduces experiment set-up times and delays in starting work by allowing users to experience the experimental environment before arriving at the ESRF, thereby optimising the time of scientists at the ESRF and the actual use of the instruments. This is important in the context of faster experiments and larger throughput rates which are one of the outcomes arising as a result of the EBS. In this context, other videos specifically target some particular aspects of the complete experiment chain (for example procedures for sample preparation, and sample mounting). These tutorials target scientists in general, potential future users.
- **Actual users:** Finally, to encourage the adoption of video publications for the description of experimental techniques by ESRF beamline groups, a small series of video publications were made, aiming for four publications during the course of the project. Such publications allow step-by-step instructions to be presented on how to carry out a particular experiment.

The following sections showcase the three main types of video (videos for science communication, for tutorials and training, and webinars, events, and workshops) used to target these audiences. Some videos cater to multiple audiences.

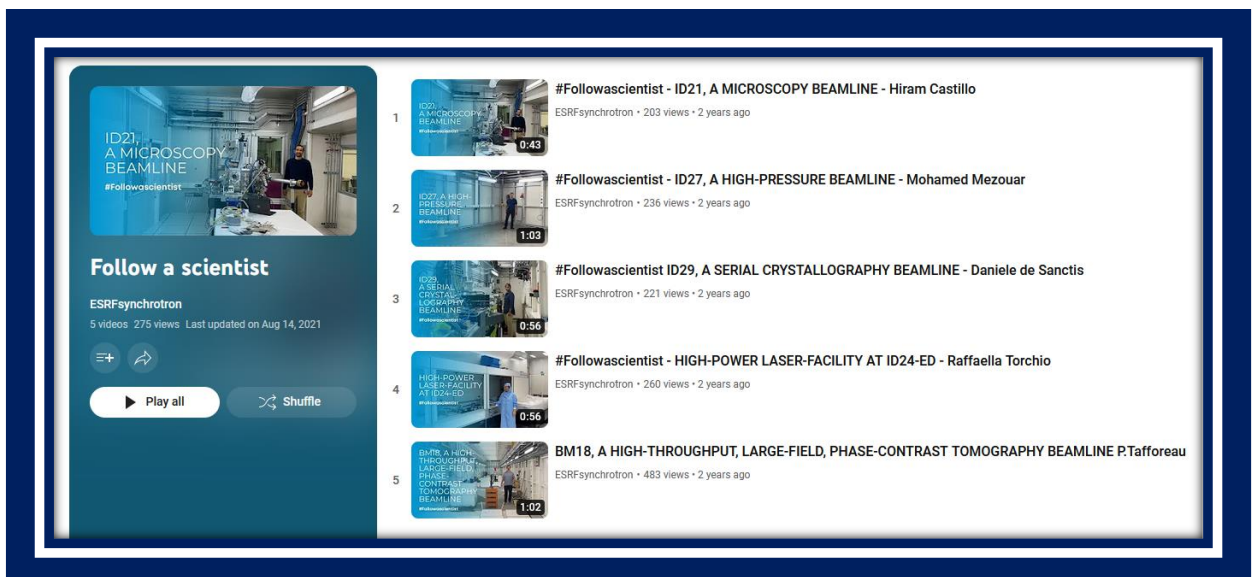
3. Videos for ESRF-EBS science communication

The videos produced now form a key part of the ESRF’s video library as available via the ESRF YouTube channel. They are structured on the channel with playlists as follows:

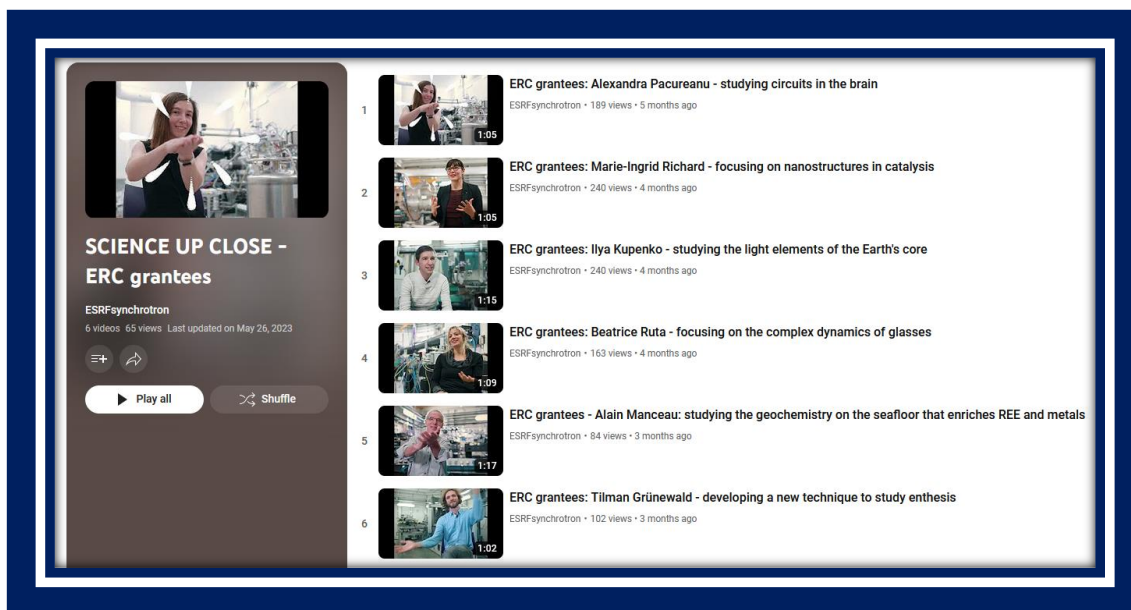
- “**EBS–stories**” videos, which show the research carried out with the EBS and aim to inspire new users in various fields such as metallurgy, neuroscience, earth science and medicine. This playlist is composed of 20 videos.



- **#Followascientist**, dedicated to the new EBS Flagships BM18 and ID29, together with the refurbished beamlines ID27, ID24 and ID21. The five videos of this playlist aim to guide the audience through the construction of flagship beamlines and the refurbishment of several others that exploit the performances of the new source, by “following” the scientists in charge of the projects and discovering the work in progress.



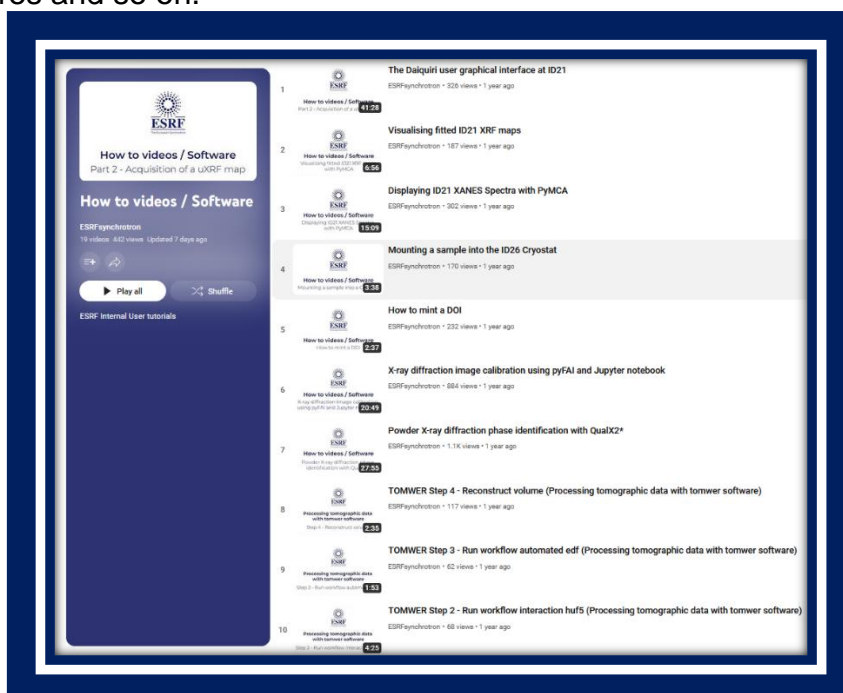
- **ERC Grantees**, which aims to show how the European Research Council (ERC) grantees use the capabilities of ESRF and to give to the audience the possibility to get more insights about the scientists behind the six projects which have been awarded ERC funding.



- **1-hour scientific webinars**, given by expert ESRF staff and users, focussing on key scientific domains and explaining the new possibilities offered by ESRF-EBS. The webinars were broadcast via Zoom and recorded so that videos can remain available on YouTube.

4. Tutorials and training videos

As mentioned previously, these videos are used extensively as a training method of particular interest to users and future users, encouraging them to learn about a beamline or particular technique in preparation for an experiment at the facility. Furthermore, additional video tutorials and guides were created with the aim to support internal staff with the correct use of specific software, procedures and so on.



5. Webinars, events, and workshop

STREAMLINE has also supported the realisation of several activities and events during the last 44 months, held both as live in person events and with remote participation. This includes the ESRF webinars, ESRF for Industry Webinars and the Workshop on Cultural and Natural Heritage, a scientific forum that took place on 22-24 January 2020 to present and promote the use of synchrotron-based techniques in the field of cultural and natural heritage (playlist composed of 28 videos in total).



6. Copyright of the online training and video material

All training and video material have been made freely and publicly available through the STREAMLINE or ESRF websites, together with the ESRF YouTube channel and associated play lists. The material is copyrighted ESRF, containing images and videos produced by ESRF staff and photographers contracted by the ESRF. Should other material be contained, the correct copyright authorisation was sought prior to making the material publicly available. This on-line library of material represents one of the enduring impacts of the project and an important ongoing exploitation of the results.

The production of the training and video material has been supported by STREAMLINE: the logo and the grant agreement have been inserted in all the videos in the last frame of the videos and/or in the slides of the presentation that were given during the events, webinars and workshops.

7. Details about the online training and video materials published

The following table lists the video material produced and supported by STREAMLINE. The videos are listed in chronological order, with a link direct to the video and the number of views as on the date of this deliverable.

Series name or event (if any)	Video title/description	Link	Views
Published in 2020 (4 videos)			
Workshop on Cultural and Natural Heritage (22 nd -24 th January)	Scientific forum to present and promote the use of synchrotron-based techniques in the field of cultural/natural heritage (28 videos).	https://www.youtube.com/playlist?list=PLsWatK2_NAmyyA0n03OMJMAKobV_Ivow2D	943
	Pushing the boundaries of macromolecular crystallography at EBS	https://youtu.be/B1fB9xvouLE	760
ESRF WEBINARS	X-ray absorption spectroscopy for solving chemical problems	https://youtu.be/wxaGZ21V1JQ	2300
ESRF WEBINARS	High-resolution imaging with coherent X-rays	https://youtu.be/w4QZIKrOQto	904
Published in 2021 (40 videos)			
#EBSstories	Making sense of the brain's circuits	https://youtu.be/hp-Ixo2BU_Y	123
	How a polymer holds the key to safer Li-ion batteries	https://youtu.be/wAptLOcqcG0	196
#EBSstories	Trace metals: from the sea floor to the beamline	https://youtu.be/LShe94buVnM	136
Mini-symposium: ESRF Earth Day	Environmental Sciences at ESRF	https://youtu.be/_gtq7fSYvpk?t=174	286
Mini-symposium: ESRF Earth Day	The fate of anthropogenic nanomaterials in agriculture soils and interaction with crop plants	https://youtu.be/_gtq7fSYvpk?t=1533	
Mini-symposium: ESRF Earth Day	The 15-P-paradox: A story of phosphorous imbalance	https://youtu.be/_gtq7fSYvpk?t=2657	
ESRF WEBINARS	Beyond EBS	https://youtu.be/unvO4QVfN5M	728
#EBSstories	Amazonian Dark Earth for a greener planet	https://youtu.be/t8dghW4QmUw	72
#EBSstories	Fish, super jaws, and rollercoasters on beamline ID19	https://youtu.be/sd0IIo8O6uc	82
#EBSstories	Improving magnesium alloys... despite jetlag	https://youtu.be/Gfq1HdG_BGc	227
ESRF WEBINARS	Nuclear quantum optics: From pulse shaping to coherent control at hard X-ray energies	https://youtu.be/5riQ-beW7pI	347
Dark Field X-ray Microscopy Workshop	13 videos need listing and linking?	https://www.youtube.com/playlist?list=PLsWatK2_NAmxUAYmY9xG5N8Ur_EDvzRIJ	907
#EBSstories	Tackling a deadly cardiovascular disease	https://youtu.be/ePn6VAksKF0	107
ESRF WEBINARS	The emergence of topological, morphological, and textural order in nacre	https://youtu.be/QR33n0Y11GQ	310
How to videos/ Software	Concur – Home Page	https://youtu.be/KxU7MzxhFn0	861
How to videos/ Software	Concur - Request without Travel	https://youtu.be/NCTIfM8BnHU	448
How to videos/ Software	Concur – Travel and Request	https://youtu.be/fKkzkQxxIik	1200
How to videos/ Software	Concur – Expense from request	https://youtu.be/xN9rP_9-Gak	933
#EBSstories	Looking for the perfect squeak	https://youtu.be/tjM7hMXTFw0	268
ESRF for Industry webinar	A trip into the heart of industry materials with multiscale X-ray tomography	https://youtu.be/eS_a7cIAa64	118

ESRF for Industry webinar	Synchrotron scattering methods for soft materials industrial research and development	https://youtu.be/hs4BCnaKqSM	151
ESRF WEBINARS	How the speciation of arsenic affects its interaction with reactive iron minerals	https://youtu.be/dE1fy7zE_-Y	210
#Followascientist	#Followascientist - Daniele de Sanctis	https://youtu.be/4VknGacvnmY	221
#Followascientist	#Followascientist - Mohamed Mezouar	https://youtu.be/Hv8OC-j3ufE	236
#Followascientist	#Followascientist - Hiram Castillo	https://youtu.be/KcdGfe1x8n8	202
#Followascientist	#Followascientist - Raffaella Torchio	https://youtu.be/ZYhlXhgV1sY	282
#Followascientist	#Followascientist - Paul Tafforeau	https://youtu.be/WRMk_Bxu9Rc	482
#EBSstories	From Oslo to Grenoble in the search of next generation batteries	https://youtu.be/B8YIi8PRp_o	171
How to videos/ Software	How to share data and logbook with collaborators	https://youtu.be/FDUFPpnllxE	248
#EBSstories	How bees' nests can help develop eco-friendly materials	https://youtu.be/9g_VIZUfKxI	232
How to videos/ Software	PyFAI - Calibration of an X-ray diffraction set-up	https://youtu.be/hqp0UyvepXk	864
How to videos/ Software	Darfix - DFXM Data Analysis Tool	https://youtu.be/6X-hK2yuBbU	159
How to videos/ Software	PyMca ROI Imaging	https://youtu.be/1wdt6VhK28Y	1100
#EBSstories	Studying laser beam welding in situ to improve engineering processes	https://youtu.be/RkVYc_FAHdc	354
ESRF News	Seeing the human body as never before	https://youtu.be/YYJWPjORaxc	1200
How to videos/ Software	TOMWER Step 1-Processing tomographic data with tomwer software	https://youtu.be/OVHGzXZaZOE	90
How to videos/ Software	TOMWER Step 2-Processing tomographic data with tomwer software	https://youtu.be/TlIM0LBAb8E	38
How to videos/ Software	TOMWER Step 3-Processing tomographic data with tomwer software	https://youtu.be/w8k9Z2HZW8E	62
How to videos/ Software	TOMWER Step 4-Processing tomographic data with tomwer software	https://youtu.be/53XcgiVWQy0	117
ESRF for Industry webinar	The ESRF, a toolbox for ligand-binding studies	https://youtu.be/2tH---7lf00	143
ESRF News	The new ID27 high-pressure beamline	https://youtu.be/jqMJVsRHY58	218
ESRF for Industry webinar	X-ray Bragg diffraction imaging ("topography") at the ESRF	https://youtu.be/g_e4eieQ1jA	546
ESRF WEBINARS	Geodynamic Modelling Tectonics is a Hologram	https://youtu.be/33XPslF4oEc	98
Published in 2022 (21 videos)			
How to videos/ Software	Powder X-ray diffraction phase identification with QualX2*	https://youtu.be/ui6cA9VoVhA	1100
How to videos/ Software	X-ray diffraction image calibration using pyFAI and Jupyter notebook	https://youtu.be/j0cphX3z2mM	883
ESRF News	The new ID24 High Power Laser Facility	https://youtu.be/uTR-Tvq-CxM	419
How to videos/ Software	How to mint a DOI	https://youtu.be/dPeN855-Mu4	232
ESRF WEBINARS	Composition, evolution and structure of the deep mantle	https://youtu.be/poEchzDAeWE	165
ESRF WEBINARS	Discoveries in a time of pestilence: new findings and the future of exploring human origins in South Africa	https://youtu.be/K8bXRXKocvs	252
#EBSstories	Mucus in lungs for drug delivery	https://youtu.be/18MThJ58i8Q	113
ESRF News	Wheat plants absorb nanoplastics	https://youtu.be/QKB6i6kiCT4	197

ESRF WEBINARS	The reign of the dinosaurs ended in Spring	https://youtu.be/jgFiPA9ILRU	348
ESRF EBS Portrait	ESRF EBS Portrait - Kirill Lomachenko	https://youtu.be/ltfNf7B8WmE	277
How to videos/ Software	Mounting a sample into the ID26 Cryostat	https://youtu.be/-bpU1XwIR34	170
ESRF EBS Portrait	ESRF EBS Portrait - Eaazhisai Kandiah	https://youtu.be/6OST2i2qycM	233
ESRF News	Towards safer chocolate	https://youtu.be/y7IJvvmcTL4	141
#EBSstories	Discovering why spider hair are amazing	https://www.youtube.com/watch?v=ZXBkbzsWP34	127
How to videos/ Software	Displaying ID21 XANES Spectra with PyMCA	https://youtu.be/7xqT_8RWyPE	301
How to videos/ Software	Visualising fitted ID21 XRF maps	https://youtu.be/QVbaBLYTFwg	187
How to videos/ Software	The Daiquiri user graphical interface at ID21	https://youtu.be/HE-3s27utIE	326
BM18 Inauguration	DISCOVER BM18 - A WORLD-UNIQUE BEAMLIN	https://youtu.be/c4mTQ0xZqNc	470
ESRF EBS Portrait	ESRF EBS Portrait - Julie Villanova	https://youtu.be/vwcOdy-bpNY	220
ESRF EBS Portrait	ESRF EBS Portrait - Matteo Levantino	https://youtu.be/oYUbvYe2Ymg	186
New SHOCK Beamtime Allocation Group at the ESRF	New SHOCK Beamtime Allocation Group at the ESRF	https://youtu.be/s3uDECwnFrw	361
Published in 2023 (9 videos)			
ERC Grantees	Alexandra Pacureanu - studying circuits in the brain	https://youtu.be/HXjZ3-6JVIO	189
ERC Grantees	Marie - Ingrid Richard - focusing on nanostructures in catalysis	https://youtu.be/jURLO8zyaR8	240
	Environmental pollutants found incrustated in iron in endometriotic lesions	https://youtu.be/Kx9EwrDXxLQ	99
ERC Grantees	Ilya Kupenko - studying the light elements of the Earth's core	https://youtu.be/8BOtvEKcVXQ	237
ERC Grantees	Beatrice Ruta - focusing on the complex dynamics of glasses	https://youtu.be/aWgM01SYcQk	163
ERC Grantees	Alain Manceau - studying the geochemistry on the seafloor that enriches REE and metals	https://youtu.be/4t4uFE8nW7c	84
ERC Grantees	Tilman Grunewald - developing a new technique to study entesis	https://youtu.be/MPIjQ2Y3Bqo	102
Additive manufacturing	Scientists follow additive manufacturing at the ESRF to discover defects	https://youtu.be/i7JWDCD_2Rg	270
#EBSstories	Delving into the neural circuits of squid	https://www.youtube.com/watch?v=BtHYnzvHIB0	355