

An Update from BiolmagingUK

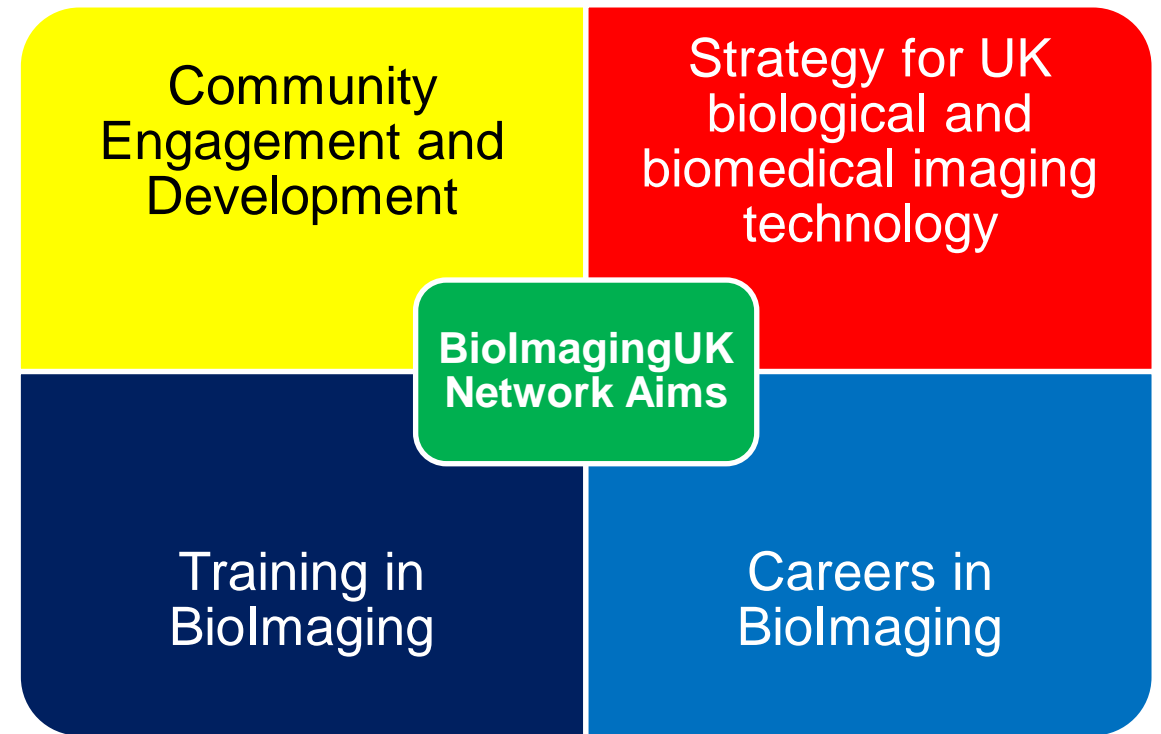
Georgina Fletcher, Project Officer

mmc2021 05/07/2021

An Overview of BioImagingUK



- BioImagingUK is an open network of UK-based scientists that develop, use, or administer imaging solutions for life sciences research
- Aim to improve collaboration, communication and training through engagement with researchers, institutions, funders and industry
- Re-funded for 3 further years (May 2019-Apr 2022) by MRC, BBSRC, EPSRC, Wellcome Trust in partnership with Royal Microscopical Society (RMS) and led by Prof. Maddy Parsons



How it started...



2019 Survey → Key Priorities identified → FIG → 5 Working Groups:

1) Software Development & Archiving

Dom Waithe, Michelle Peckham, Alex Sossick

2) Defining Job Roles & Recognition

Jessica Valli, Jemima Burden, Maddy Parsons, Daniel Soong

3) Structure of UK LM Facility Infrastructure

Kurt Anderson, Pete O'Toole, Tanya Whitfield

4) Community Strategy Development

Lucy Collinson, Gail McConnell, Allison Winton

5) Euro-Biolmaging UK Nodes

Paul Verkade, Jason Swedlow, Violaine See

How it started...../.....How it's going



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WG 1) Software Development & Archiving

Best practice strategies for bioimage analysis in research

- Questionnaire by Dominic Waithe is still open
- Handy tips from Dominic Waithe and IA-FIG on
 - naming files and folders
 - data back-up and archiving
 - version control
 - zenodo



<http://iafig-rms.org/questionnaire/>

WG 1) Software Development & Archiving

Best practice strategies for bioimage analysis in research

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Summary of two questionnaires designed to understand the research climate for Bioimage Analysts in the UK

- F1000 paper from Dominic Waithe based on 2 surveys from 2016-2019
- Take-home messages:
 - Critical, and growing community
 - Major issues are the nature of funding and longer-term career possibilities

<https://f1000research.com/articles/10-276>



WG 2) Defining Job Roles and Recognition

Imaging Facility Guidelines for Acknowledgement

- 1 All publications resulting from the use of instruments within the facility should acknowledge the facility as a whole, e.g. 'the authors gratefully acknowledge the [core facility name] for their support & assistance in this work' and the facility should be informed of the publication.
- 2 Specific grants that have funded the facility instruments used for the work to be published must be acknowledged if the data was acquired during the active period of that grant. Facility staff will advise users of such grant codes.
- 3 Assistance above the technical or routine level, with any facility staff providing scientific input and expertise in experimental set-up, acquisition or analysis, should be recognised through co-authorship on resulting publications. Please discuss acknowledgements with facility staff prior to manuscript submission.

Example scenarios with baseline recommendations:

Sample Preparation	Fast, routine sample preparation with standard protocol.	Simple acknowledgement
	Development of new sample preparation protocols. Optimisation of existing protocols for specific samples.	Inclusion of specific facility member on author list
Image Acquisition	Training of users to acquire images themselves. Simple acquisition of raw data.	Simple acknowledgement
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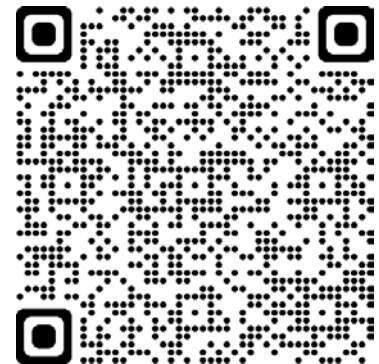
Based on the publication policy compiled by Natasha Stephen, Plymouth Electron Microscopy Centre, after discussions with the RMS EM-UK community



Get the deserved recognition for your Imaging Facility - download and display this Publication Guidelines Poster from BioImagingUK and the RMS!

As the new CEO of UKRI, Ottoline Leyser recently said “**we have to move away from the idea of science being carried out by a lone genius**”. The sooner we recognise everyone’s contributions to the research effort the more impact we can have.

www.rms.org.uk/network-collaborate/bioimaginguk-network/imaging-facility-publication-guidelines.html



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YOUR ACKNOWLEDGMENT MATTERS

KEEP OUR FACILITY IN YOUR PUBLICATIONS

IT HELPS US MAINTAIN OPERATIONS
Showing input within the scientific community is one of the important parameters to maintain funding and investments for core facilities.

IT IS ABOUT SCIENTISTS TOO
Our core imaging facility personnel may have contributed to your research project. Authorship is important for them too.

MORE RESOURCES FOR CORE IMAGING FACILITIES AT www.argolight.com/blog

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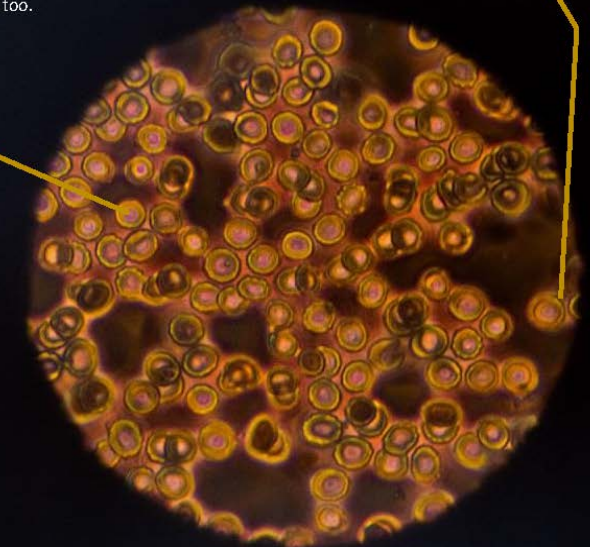
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WG 3) Structure of UK LM Facility Infrastructure

What is the Structure of our Infrastructure?

A Review of UK Light Microscopy Facilities.

Georgina Fletcher & **Kurt Anderson**

Under review at Journal of Microscopy



Survey Responses:

114 people from 46 UK LM Facilities

= 55% of LM Facilities on the RMS Facility
Database (n=83)

Take-home message: one size does not fit all!

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parity of salary progression between males and females

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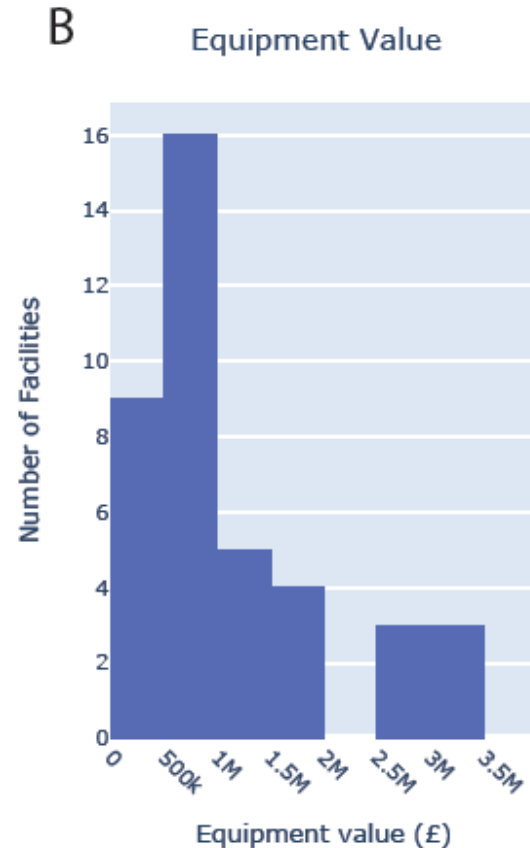
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Equipment value of £44 million under management,
primarily from equipment grants and institutional
support not PI-led research grants.

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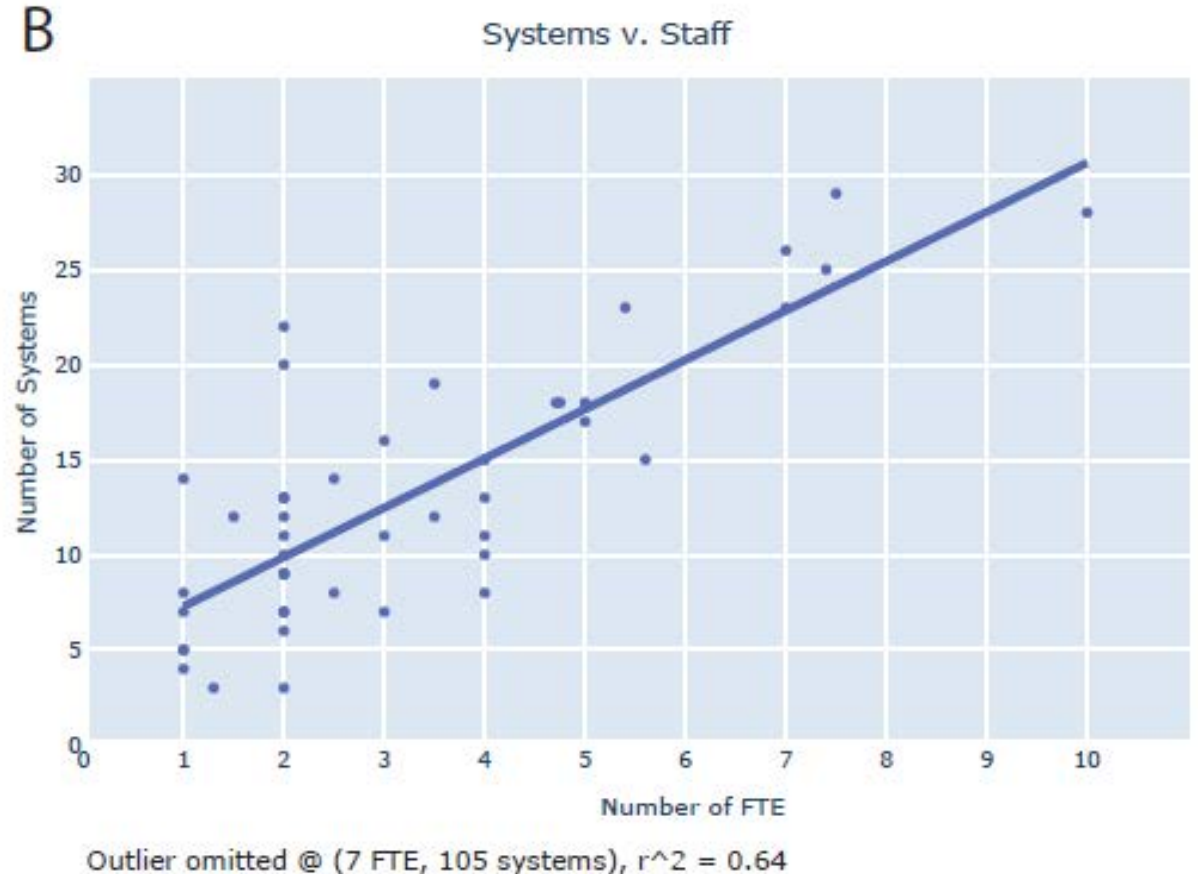
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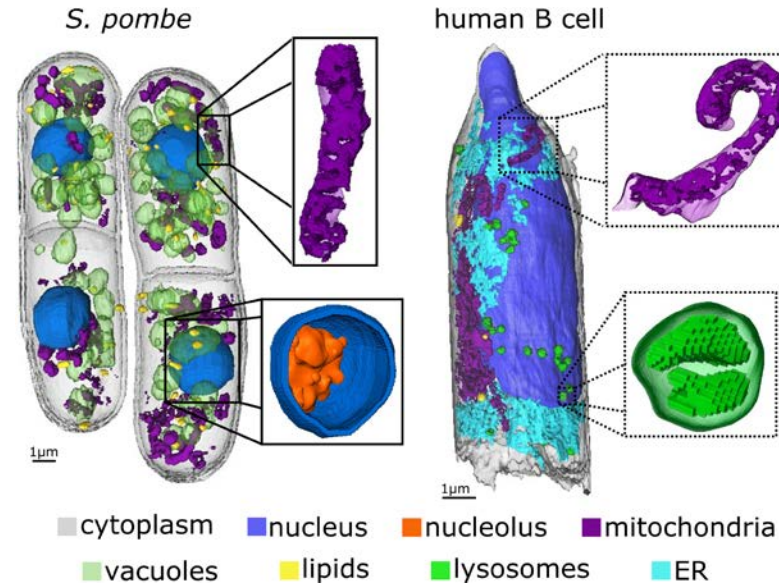


strong correlation between the number of systems
and number of staff: $n_{\text{Staff}} = n_{\text{Systems}} \times 2.5 + 5$

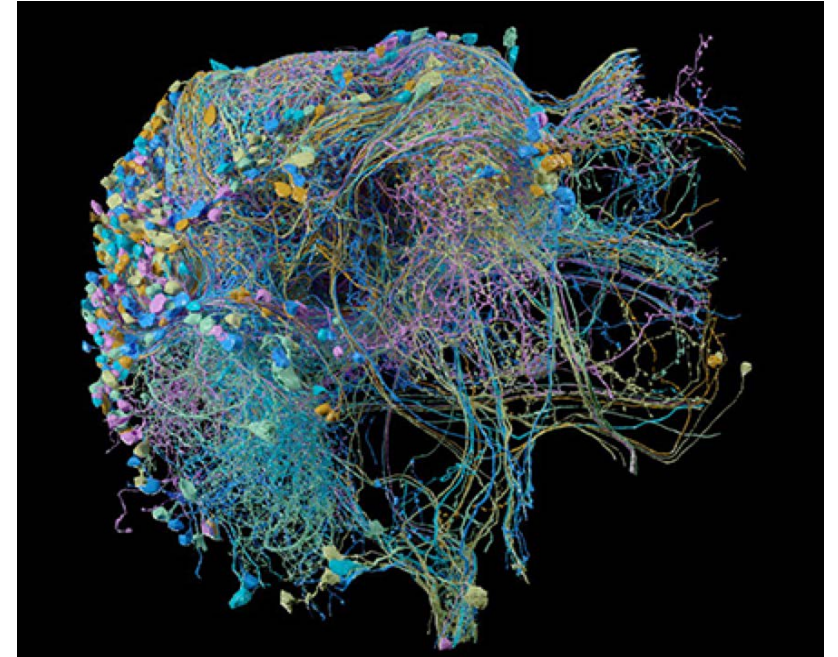
WG 4) Community Strategy Development



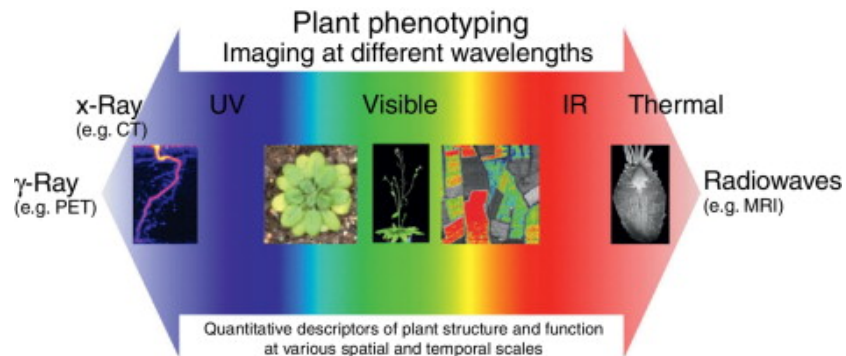
Medical Imaging WG



X-Ray FIG



Volume EM



PhenomUK

@volumeEM1 

www.volumeem.org

WG 5) Euro-BioImaging UK Nodes

- Euro-BioImaging offers open-access to innovative imaging technologies
- The UK is a founding member of Euro-BioImaging ERIC
(In 2013, the UK submitted several Node Expressions of Interest)
- The UK does not have national Imaging Nodes yet
(requires substantial funding commitment from UK funders)
- In 2020, BioImagingUK ran a national, open community consultation to build consensus on the nature of UK Imaging Nodes and ensure they serve UK science. The resulting white paper is being used as a guide in discussions with UKRI. ([10.5281/zenodo.4266470](https://doi.org/10.5281/zenodo.4266470))

WG 5) Euro-Biolmaging UK Nodes – Call is OPEN!



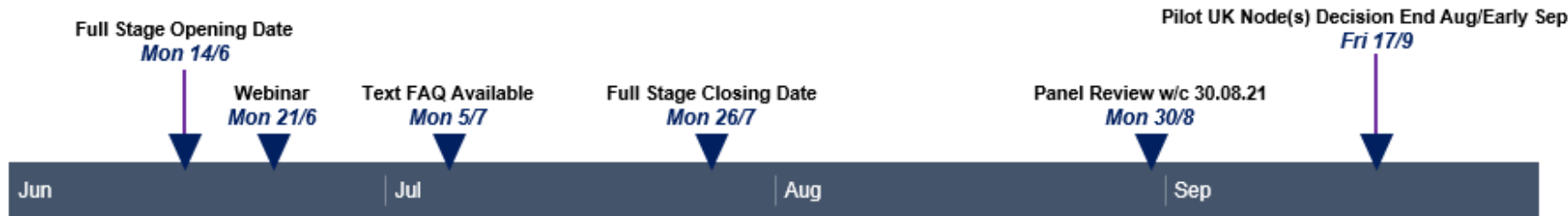
2021 Identification of Pilot UK Community Access Nodes for Euro-Biolmaging

Aim

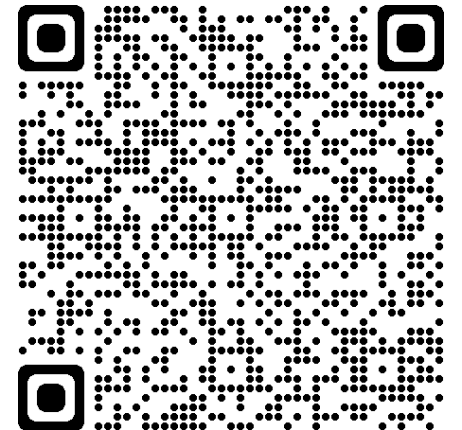
To establish a network of shared bioimaging infrastructure within the UK, allowing scientific questions to be addressed with the best available tool, whilst opening up opportunities for bioimaging skills and knowledge exchange within the UK and with Euro-Biolmaging



Opportunity Timeline



Note: Downstream processes related to formally joining the Euro-Biolmaging ERIC are subject to Euro-Biolmaging's processes and approval.



What else is happening?

- Eight Business Interaction Vouchers (BIVs) with BBSRC – feedback was very positive
Susan Cox and Chris Toseland will present Flash Talks in final session today

BBSRC & BioImagingUK Business Interaction Vouchers (BIVs)



Academic PI	Industrial Partner	Project Title
Dr Susan Cox	NikonUK	A custom light sheet microscope for 3D single molecule localisation microscopy
Prof Roland Fleck	AstraZeneca	Predicting critical nanoparticle performance attributes using AI-driven image analysis
Prof Paul French	Cairn Research	Implementation of novel low-cost cooled CMOS cameras in openScopes microscope platform
Dr Tim Hawkins	P&G	New tools and methodologies for high speed, high resolution imaging of melanosome trafficking and transfer
Dr Peter O'Toole	StreamBio	Development of novel class of fluorophore for microscopic imaging and flow cytometry
Dr Jonathan Taylor	M Squared Life	Motion-aware 3D microscopy in dynamic live samples
Dr Rebecca Thompson	Covance Lab	Validating electron microscopy methods to measure the empty:full capsid ratio of virus-like particles for use in gene therapy
Dr Chris Toseland	Refeyn Ltd	Development of a Label-free single molecule screening assay

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- Technical Tea Breaks on YouTube – short video primers on imaging need-to-knows

Technical Tea Break Video Series



Idea:



Short talks (~15min) providing **concise** information on the **practical need-to-knows** for running imaging experiments

Hosted on the RMS YouTube channel as Playlists.
First one is Light Microscopy Fundamentals (9 videos)



Target Audience:

Those carrying out imaging experiments so Technicians, PhD students, Post-docs

Organisers/Speakers:

Nicola Lawrence, Alex Sossick, RMS Early Career Committee (Liam Rooney, Stephania Marcotti, Emma McDermott), Dale Moulding, Nadia Halidi, Beccy Saleeb, Carina Monico

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- RMS Resources Webpage

Online Resource Page on the RMS website

www.rms.org.uk/resources-downloads/online-microscopy-talks



The screenshot shows a web browser window with the URL <https://www.rms.org.uk/resources-downloads/online-microscopy-talks.html>. The browser's address bar and tabs are visible at the top. The website's header includes the RMS logo, navigation links (About, Contact, Membership), and a dark green bar with 'Login' and 'SEARCH' options. A yellow circle highlights the 'RESOURCES & Downloads' menu item in the top navigation bar. Below the header, the page title is 'Online Microscopy Talks: Connect, learn and stay up to date'. A yellow arrow points from this title to the 'RESOURCES & Downloads' menu item. The main content area is divided into sections: 'Working Safely in the Covid Era', 'Recorded Talks & Lectures', 'Live Streams', and 'Software Special Offers'. The 'Recorded Talks & Lectures' section lists a 'Continuously Updated Webinar Series' with several items, including NEUBIAS Academy, University of Cambridge Weekly Microscopy Remote Lecture Series, Cell Migration Virtual Seminars, Thermo Fisher Scientific: Connect2Science Webinar Series, PicoQuant Webinar Series, BioTek Webinar Series, Arivis Webinar Series, Scientific Volume Imaging Webinar series, Octopus Webinar Series (Fluorescence imaging and CLEM), and Lecture Biolmage Analysis 2020. A semi-transparent dark blue overlay covers the right side of the page, containing a list of resources: 'Resources for School Children', 'Microscopy Gender Equality Resource', 'Facilities Database', 'infocus Library', 'Core Facilities Publication Policy', 'MAK Resource Library', and 'RMS Digital Calendar'. A yellow arrow points from the 'Online Microscopy Talks: Connect, learn and stay up to date' title to the 'Resources for School Children' link in the overlay.

Online Microscopy Talks: Connect, learn and stay up to date

Resources for School Children

Microscopy Gender Equality Resource

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RMS Digital Calendar

Working Safely in the Covid Era

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Continuously Updated Webinar Series:

- NEUBIAS Academy - a new series of live online events targeting a
- Technology
- University of Cambridge Weekly Microscopy Remote Lecture Series
- Cell Migration Virtual Seminars
- Thermo Fisher Scientific: Connect2Science Webinar Series
- PicoQuant Webinar Series
- BioTek Webinar Series
- Arivis Webinar Series We are providing weekly free webinars about
- Scientific Volume Imaging Webinar series
- Octopus Webinar Series (Fluorescence imaging and CLEM)
- Lecture Biolmage Analysis 2020

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- RMS Resources Webpage
- The Hidden Ref – winners will be announced in Sept at online awards ceremony
- RMS Mentoring Scheme (Joelle Goulding, Scott Dillon, Nicola Lawrence, Paul Verkade, Alex Sossick)
- Coffee Club - ad-hoc basis over Summer, but a useful place for informal discussion, information gathering and networking (Peter O'Toole, Nicola Lawrence, Alex Sossick)

What are your thoughts about BioImagingUK?



- Current funding cycle runs until June 2022 – how do we sustain our efforts after this?
- Do you think the Network is delivering results and achieving its initial aims?
- What would you like to see the Network do that isn't currently covered?

Put any comments or questions in the Zoom chat!

Communication channels – staying involved

1. **Contact me directly: georgina@rms.org.uk**


2. **JISC Mailing List (UK-EUROBIOIMAGING-PROJECT):**



www.rms.org.uk/network-collaborate/bioimaginguk-network

3.  **@BiolmagingUK**

4.  **BiolmagingUK Network**

5.  **Slack** (email me for invite)



Thank you – the Network is nothing without you!



Maddy Parsons, Jason Swedlow, Alex Sossick, Kurt Anderson, Michelle Peckham, Peter O'Toole, Lucy Collinson, Paul Verkade, Martin Jones, Chas Nelson, Marco Marcello, Violaine See, Jessica Valli, Beccy Saleeb, Nicola Lawrence, Liam Rooney, David Barry, Jemima Burden, Daniel Soong, Nandita deSousa, Dale Moulding, Tim Self, Carina Monico, Nadia Halidi, Liz Duke, Simon Hettrick, Carlos Constantino Reyes, Todd Fallesen, Dominic Waithe, Joelle Goulding, Scott Dillon, Kevin Mackensie, Alex Ball, Anwen Bullen, Patricia Goggin, Chris Peddie, Natasha Stephen, Nick Barry, Stefanie Riechelt, Kirti Prakash, Alessandro Esposito, Mike Ball, Daniela Hensen, Phil Hubbard, Rowan McKibbin, Johanna Bischof, Antje Keppler, Susan Cox, Roland Fleck, Chris Toseland, Rebecca Thompson, Paul French, Jonathan Taylor, Tim Hawkins, and **all the RMS team** 😊