wellcome centre integrative neuroimaging

Lab Handbook

WIN Physics Group

Welcome to the WIN Physics Group! We are a team of researchers based at the Wellcome Centre for Integrative Neuroimaging (WIN) at the University of Oxford. Our work focuses on the development of novel neuroimaging techniques, and the use of these techniques to learn more about the anatomy & function of the brain.

We wrote this document to ensure that all new members of WIN Physics and the wider research community have an insight into how our group operates. In this handbook, you will find detailed information about life as a member of WIN Physics, what we expect from our researchers, and the support we can offer to your research development throughout your time here.

Feel free to reach out to one of the WIN physics Group members for help & clarification on any of the topics presented. We welcome feedback that you may have on this document, and how we can continue to improve the research experience across the academic spectrum.

- *The WIN Physics Group*

How should I read this handbook?

Whilst we hope this document serves as a useful resource throughout your time at the WIN, our expectation is that all new members read this document in the *first month* of joining our lab.

What about the day-to-day?

A second handbook providing more specific information regarding the operation of the WIN Physics Group and available resources (e.g. meeting schedules, publishing practicalities, travel logistics) is under active development.

I think something is missing/incorrect, who can I speak to?

A number of members of the WIN Physics Group have contributed to this document, and we have a working group on our Slack channel. Alternatively, you can email the principal curator of this document, Benjamin Tendler, at benjamin.tendler@ndcn.ox.ac.uk.

In this Lab,

WE BELIEVE

Science
is real

Love
is love

Black Lives
matter

Feminism
is for everyone

Disabilities
deserve accessibility

Immigrants
are welcome

Image modified from https://sammykatta.com/diversity

Contents

Roles & Expectations

General Expectations

The WIN Physics Group does not strive to be a strongly hierarchical lab. Everyone is expected to treat each other with sincere respect, regardless of career stage. Nevertheless, there are certain relationships that are formalised in terms of supervision of research. In these roles, it is important for both sides to know what they can expect from the other. To succeed as a team, it is important to understand the challenges people face at different career stages and how we can help each other. This section aims to outline these considerations.

While many roles are formally defined (e.g. doctoral supervisor or line manager), they are not fixed. Everyone has a different personal working style, prefers some modes of interactions to others, and has different needs from their workplace. One key to working well with such a diverse group of people at different career stages is communicating your style, preferences and needs. In addition, we each develop a unique relationship with our labmates. This includes supervision: every supervisory relationship is different, even within a single principal investigator's (PI's) group. Provided these relationships are grounded in respect and fairness, that is absolutely fine!

Overall, feedback and communication are key. In any interaction with work colleagues, it is crucial that both sides are willing to give and receive constructive feedback. Whether personal or professional, helpful feedback: (i) focuses on behaviour rather than the individual; (ii) communicates the objective impact of behaviour; and (iii) considers how to improve in the future, which may involve both parties. In general, if you don't feel comfortable talking to your PI/line manager about something, you should be able to speak to a college or departmental advisor/resource.

The following sections are divided into three career stages - Students, Early career Researchers and PIs. We recommend that you read all three sections, to gain an insight into the day-to-day of different career stages, how you can support the people around you, and similarly, what to expect from them.

Students - Includes anyone actively working toward a research degree, including Masters and DPhil students, and both Oxford-enrolled and visiting students.

Early career researchers - Includes postdoctoral researchers and junior fellows (e.g. someone on their first independent grant who does not yet supervise other staff members).

Principal investigators - Senior academics leading research groups, often with a faculty title (lecturer or professor).

Students

Day-to-day as a student

Postgraduate research spans many years and represents a big transition from the more familiar world of undergraduate coursework and short-term projects. The vast majority of a research student's time will be dedicated to their own research project, from data acquisition and analysis, to preparing presentations and writing-up.

To complement this research, a typical week will often include some combination of: supervisions, one-to-ones with other group members, general lab meetings, study groups, educational activities or time dedicated to self-learning.

Students may decide to become involved in student clubs or college activities, including sports, committees and events. Colleges can provide excellent social networks, and benefit a student's well being while in Oxford. We expect supervisors to be accommodating to these activities, and make reasonable arrangements when necessary. However, commitments that have the potential to interfere with your research (e.g. activities that regularly take place during typical lab hours) should be discussed and agreed beforehand, to minimise the impact on your progress.

Challenges for students

Navigating your first major research project is a challenging task for most students. Students have to learn many new technical skills while also trying to make research progress, which can be stressful. Most students also have to improve a number of "soft skills" such as critical thinking, effective communication and time management.

The scale of a research project is typically larger than projects a student will have encountered previously. Most research projects have long-term timescales, which can be frustrating for those used to more short-term projects. Setbacks are inevitable in research, and learning how to cope and recover from these takes time, fortitude and patience.

The stressors of a research degree can be exacerbated by feelings of isolation due to working on your own and poor self-care if working long hours. Uncertainty about future job prospects add to this mental burden.This may be particularly challenging for students who wish to take important personal steps, such as starting a family or buying a house. Students living abroad for the first time also face language barriers, culture shock and homesickness. For many students, distance from their support networks amplifies these difficulties. These aspects of academic culture that are not conducive to mental wellness can be difficult at all stages of a research career, but experiencing this for the first time can be overwhelming. We specifically address these issues in Work & Wellbeing.

What can more senior members expect from students?

Students are expected to recognise that research degrees are a form of training, and that struggles with research are a part of the learning process. Their supervisory team will have built up experience over one or more decades, which provides them not only with background knowledge but also good intuition about how to make efficient progress or overcome a given hurdle. Students should expect to need close direction initially, but to become more independent as they gain knowledge of their research topic and develop research skills.

Supervisors can expect students to provide regular, detailed updates on their progress. Preparation for supervisory meetings is critical. Typically, students will lead these meetings and should come with an agenda. Slides, figures and pre-loaded data can be crucial for looking in depth at the current state of the project. Supervisors will expect students to listen carefully and carry out agreed actions between supervision sessions. If something is unclear, students are expected to ask for clarification to avoid revisiting the same topic in the future.

Students are also an integral part of the wider lab and frequently play a crucial role volunteering to help with tasks the group needs to function. In general, senior members will expect students to participate actively in group meetings and regularly work at the lab in person, unless it has been previously agreed with their supervisors. However, supervisors also expect students to treat their research project as their top priority.

A student's academic progress will be assessed on an approximately yearly basis. While supervisors can be expected to understand what is needed at each stage, students are expected to remind supervisors when a milestone is approaching so that the supervisory team can discuss. See NDCN's graduate timeline for details.

How can more senior members help students?

Students are trained professionals and their ideas should be taken seriously. Learning how to develop scientific ideas is a critical part of scientific training. Senior members should encourage students to come up with their own ideas on research problems, and respectfully talk through why some directions are more likely to be fruitful than others.

Students can expect to meet with their supervisors regularly, in a format that everyone is comfortable with, and with flexibility where needed. Supervisors (both PIs & ECRs) should cultivate a non-judgemental environment where students feel respected, empowered to point out mistakes (including those made by PIs - we're all human!), and able to admit when they do not understand something. Students should expect their supervisors to explicitly commend major research milestones.

Students will ideally feel safe to seek informal advice and support on other topics, including around their wellbeing. Students can also seek advice from other senior members in the group if that is more comfortable. Often the best action a senior member can take following these discussions is to direct students to wider University support services.

Supervisors will also provide feedback on papers, thesis chapters, and presentations on an agreed timescale. Supervisors have many work commitments, so it's good practice to provide plenty of notice of an upcoming deadline or a paper draft that is nearing completion. Supervisors and the wider WIN staff should provide students with facilities to work efficiently, ensuring they have the necessary resources (including data, lab and computing resources) to conduct their research.

Supervisors can also play a crucial role in introducing their students to other department members and the wider scientific community. This can help establish the student as a researcher in the field, and open up collaboration avenues. Where appropriate, students should feel comfortable asking supervisors for an introduction. Students can ask their supervisors to provide references when applying for jobs, grants or promotions.

Early Career Researchers

Day-to-day as an ECR

The ECR stage is marked by a transition to increasing independence in research activity. Most ECRs still spend the majority of their time working directly on their own research, but will get involved in a broader range of projects (for example, through student co-supervision). This is the career stage where researchers start to carve out their own research niche and expertise, and distinguish themselves from their supervisor/line manager.

In many ways, ECRs are the lifeblood of the group: experts in their area, experienced in academic workplaces, and less burdened than PIs. This typically leads to new responsibilities outside of research, such as: applying for fellowships or grants, reviewing papers, sitting on examination panels or committees, and teaching. ECRs may be asked to stand in for PIs in collaborative meetings, admin work, or student supervision.

Challenges for ECRs

Compared to students, ECRs are less closely supervised, placing more responsibility on the shoulders of the researcher, which can take some time to get used to. On top of this, ECRs will often have changed labs and/or research topics recently, which also requires adjustment. To demonstrate their ability to take a lead on research projects, ECRs are expected to develop a strong publication record, which can be stressful. It can also be tricky to balance writing up studies from a previous position alongside making good progress on the current project.

Whilst being an ECR can be an exciting time - when you start to spread your wings as a researcher - this can also be a difficult career stage to navigate. ECR positions are inherently transitional: ECRs are usually on fixed term contracts (typically ~3 years). This often coincides with being at a turning point professionally and personally, weighing what kind of position should come next (including research, teaching or industry), where

this next post might be (in Oxford or elsewhere) and how this might fit in with personal commitments (partners, family and friends).

This is also a career stage where work-life balance becomes particularly important to manage explicitly. The challenges described above often come at a time when a researcher has growing personal commitments, such as starting a family or buying a house. Managing these with a diversifying workload, the uncertainty associated with fixed-term contracts, and reduced supervisory support, can be very difficult.

What can senior members expect from ECRs?

ECRs can provide valuable support to senior members of the group. This ranges from supporting more junior members, to group administration, to teaching on the WIN graduate program. Support for junior members of the group can take many forms, ranging from providing technical expertise to co-supervision to informal mentoring. It can also involve advocating for more junior members, either within the group or in the broader work environment.

As well as freeing up time for more senior members, this kind of support provides an important route for skills and expertise to be disseminated within the group. This has the added benefit of providing the ECR with leadership experience, a crucial skill for those who wish to go on and build groups of their own in the future.

ECRs can also provide crucial constructive feedback on research directions and the running of the group to senior members. They are often more aware of specific difficulties faced by junior group members, and bringing these to the attention of PIs can be extremely useful. For ECRs who have worked in other institutions/departments, discussing ideas or initiatives that worked well in their previous group can help improve lab culture and team dynamics.

How can senior members help ECRs?

We are keen to support the growth and development of our ECRs. An ECR can expect senior members of the group, particularly their line manager, to provide time to discuss their career development. This should be particularly valuable when evaluating options for transitioning to the next career stage. This includes practical advice and feedback on grant/fellowship applications, guidance on applying for jobs and perspectives on different career paths.

Senior members should endeavour to promote our ECRs where appropriate. This includes suggesting them for invited talks, introducing them to colleagues in the broader research community, nominating them for committees, or suggesting them as a collaborator on a project. These kinds of introductions can be difficult for an ECR to engineer on their own, so leveraging the networks of senior group members can be useful.

Senior members can create opportunities for ECRs to take on increased responsibility and grow independence, which is crucial for advancing their careers. For example, where an ECR formally co-supervises a student, it may be appropriate for them to be the (sole or joint) senior author on the resulting publication. As the programme of research of a senior member grows, there may also be opportunities for an ECR to become the resident expert in a particular topic, taking on the responsibility for that area of work and liaising with collaborators.

What can students expect from ECRs?

Since ECRs have recently navigated a PhD/DPhil themselves, they can be a great source of support for current students. Topics of guidance include thesis/paper writing, preparing for vivas/interviews, applying for postdoctoral positions, and writing a strong CV, as well as general discussion about life as an ECR.

ECRs are in a great position to help students with their research. They will often have more time than senior group members to help talk students through a particular technique, as well as more up-to-date knowledge and experience. They can also point students towards resources, papers or techniques that the student is not aware of.

ECRs often know the best people to talk to about particular issues, or can raise concerns with senior management if a student feels unable to advocate for themselves. However, we do encourage students to discuss any problems with their supervisors in the first instance if at all possible, as they are usually in the best position to help.

How can students help ECRs?

If students have a supervisory team including an ECR and senior PI, it is important to understand that this reflects the PI's confidence in the ECR's ability to help direct the research. If the ECR provides day-to-day supervision, they are acting as a proxy for the PI, and their guidance should be taken seriously and respectfully by the student.

When seeking help from an ECR, it is important for students to respect other demands on their time. Support often entails pointing a student in the right direction, but not solving the problem directly. One way to be respectful of an ECR's years of expertise is by taking careful notes. This is not only good research practice, but also avoids the need to ask similar questions in the future.

ECRs with unique expertise in the group can spend a lot of time helping others. It is important to ensure they receive appropriate credit (e.g. co-authorship or acknowledgment). PIs may not be aware when this kind of support happens, so it is crucial for students to remember who helped them when they are ready to publish. We expect most students to receive this kind of help from time to time, and accepting it does not diminish the student's own contributions.

Principal Investigators

Day-to-day as a PI

Research is a core component of any PI's job, and makes up a significant proportion of their day-to-day activity. Unlike more junior members who are conducting research directly, most senior members struggle to take on personal research projects as their responsibilities grow. Instead, senior PIs engage in research projects via supervision, typically directing many projects in parallel. PIs are expected to produce multiple last-author papers in the same period where junior researchers might produce one first-author paper.

Despite the importance of research activity, this is only one part of a PI's role. They shoulder responsibilities that are not directly research related, such as grant writing, committees and advisory boards, group logistics (budgeting, hiring, etc), leadership in large-scale initiatives, and teaching. As a result of these responsibilities, PIs regularly receive >100 emails per day, and send nearly as many (e.g. over 3 years, one PI on average sent 42 emails/day).

Challenges for PIs

Simultaneously managing this broad range of tasks means that PIs are often switching their work context from hour to hour, exposing imperfect memories and leading to constant distraction. PIs are often thrust into learning basic professional and time management skills on the job, usually with no formal training in management. To those who haven't had to manage these challenges, it may appear that delays or mistakes are due to carelessness, but often it is simply a consequence of the difficulty in keeping up with everything that requires attention.

Another major challenge for PIs is the handling of delicate situations, often with little warning. PIs find themselves managing conflicts; making decisions that affect many people; having difficult conversations; handling legal, ethical or personal issues; and addressing lab emergencies. Dealing with these situations requires time and experience, and is another aspect of senior PI responsibilities that early career researchers are typically shielded from.

Understanding how PIs communicate can help foster an effective working relationship. In light of the intense volume they receive, emails that are brief are easier to respond to. Similarly, many PIs develop a "rapid fire" strategy of sending emails that are short and to the point. Junior members can aid communication by not interpreting this as negativity or criticism. Similarly, some PIs may be more or less active on other communication

channels like Slack. Effective communication will result from finding a communication strategy that works best for a given PI.

What can junior members expect from PIs?

Most importantly, junior members can expect PIs to provide support and clear communication of expectations. They play an active role in the research being undertaken by more junior members, offering high-level guidance throughout the research process, whilst additionally providing mentorship and guidance on a broad range of topics, including career development, and work-life balance. All PIs in the physics group are willing and available to advise junior members, whether or not they have a formal supervisory relationship. These discussions will always be treated as confidential, unless there are circumstances that would compromise the ethics or wellbeing of either party.

Beyond this, PIs also often play an active role in helping junior researchers. They can advocate for junior researchers in discussions where they might struggle to advocate on their own behalf, such as discussions with other PIs over shared resources or co-authorships. PIs facilitate interactions within the university administration or with external organisations. PIs often act as a “sponsor”, identifying opportunities for career advancement or reputation building, such as suggesting junior members for invited talks. PIs can also help with coaching through career transitions, whether that is a fellowship held in Oxford, or another position elsewhere. Finally, junior researchers can expect PIs to provide references for jobs or promotion, even long after they have left Oxford.

Junior researchers can expect their direct line manager to make time for regular supervision meetings. PIs differ in their management style: some prefer to schedule meetings on-demand, while others arrange weekly slots. Junior members have the right to request regular meetings, with a frequency and format that works for both parties. In-person meetings are strongly encouraged, but when circumstances dictate, virtual meetings should be arranged.

How can junior members help PIs?

Labs are communities, and good citizenship in that community helps the group run smoothly. Senior members notice and appreciate those who contribute actively, e.g. by volunteering to take on tasks that relieve some of the burden on PIs. That said, junior members should appreciate that the majority of your time is expected to be spent on your research. Only take on tasks you know you can deliver on - and ideally enjoy, or at least not find burdensome.

Junior members can help PIs by reliably completing tasks you have agreed to handle, whether research or good citizenship. Incomplete tasks add to the workload of PIs: Knowing that tasks assigned to a group member will be completed on time reduces the burden on group leaders, and helps junior members build reputational credit. For research projects, an effective strategy is to keep a written record of agreed tasks,

share that with your supervisor, and return to that list at the next meeting. For students, these records are also helpful for writing termly reports.

A key challenge for PIs is maintaining proper oversight over projects they are responsible for, while not slowing those projects down. Small tasks and decisions can be held up by over-burdened PIs, despite best intentions. It is helpful for junior members to learn to distinguish which decisions need PI input, and which can be acted on independently. For example, travel costs often simply require you to know the relevant deciding factors (e.g. funds available), while equipment purchases can be facilitated by presenting the PI with a clear recommendation rather than a long list of options. Similarly, some emails to collaborators are straightforward while others are delicate, requiring PI oversight.

Flexibility in scheduling can be a great help for a PI who has many different demands on their time. Often, PIs need to fit in larger, logistically challenging meetings with many busy attendees, or need to deal with unexpected issues that require immediate attention. Requests to move meetings around is not a reflection of low priority - rather, supervision sessions with junior members are often the easiest things to reschedule. However, junior members have a right to expect that, in general, meetings are rescheduled rather than cancelled outright.

Core Staff

Although not officially members of the WIN Physics Group, all of our research is underpinned by indispensable support from the WIN (and NDCN) core staff. Much of this infrastructural work happens quietly in the background, but it keeps the centre running smoothly and is crucial to ensuring that you can focus on your research. WIN core staff covers a broad range of activities including:

- Administrative support (e.g. looking after our buildings, navigating university structures, etc)
- IT and experimental support (e.g. administering compute facilities, advising on MRI safety, etc)
- Analysis and physics support (e.g. answering FSL questions, looking after scanners, etc)

We expect everybody to *always* treat core staff with respect, and specifically to value their time and high degree of professional expertise. Bear in mind that they might not be able to address your issues immediately, as they have to juggle requests from across all of WIN. If teams have regular drop-in hours for urgent face-to-face interaction, try to respect those hours. Many issues are best communicated via email.

Core staff are highly trained individuals, often with unique expertise not held by members of the WIN Physics Group. They may provide an active contribution to your research project beyond what would be considered conventional ‘support’. Under these circumstances, it is important to acknowledge these contributions, for example,

co-authorship on an upcoming publication. More junior members are encouraged to discuss this with their PI/line-manager when circumstances arise. Further details on WIN co-authorships policies are discussed in the Collaborating section. Nevertheless, whether a contribution to your work has been big or small, *always* remember to say “thank you” - everyone likes to know their help is appreciated.

Sometimes our research goes to plan. Sometimes our research fails. Sometimes our research fails so badly the result can only be described as a masterpiece.

WIN ‘Failure’ Masterpiece Gallery.

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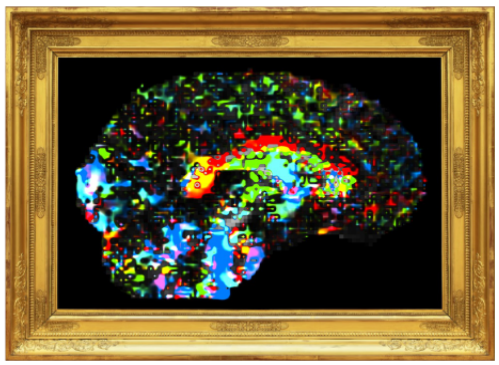

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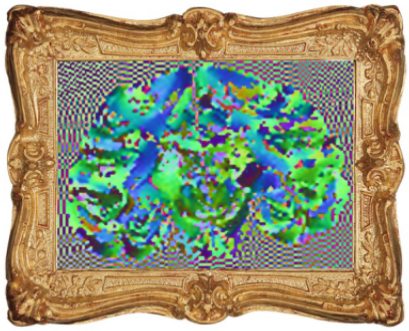

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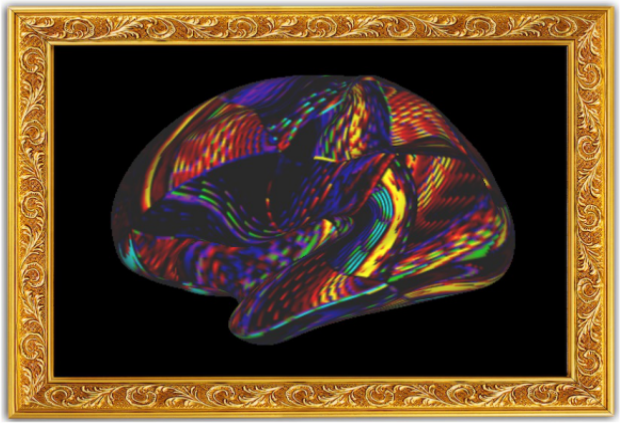

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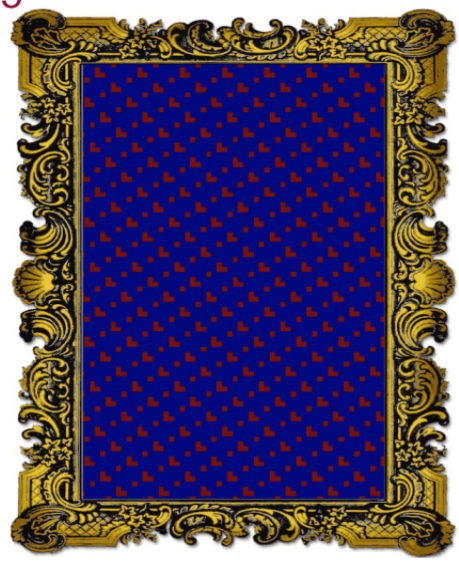


1. Portrait of a Monte Carlo misinterpretation
2. Interpolation of an Eigenvector
3. Abstraction of a diffusion tensor
4. Deconstruction of a resting-state network
5. For the love of trajectories

Research Group Culture

Workplace Conduct

We aspire to an inclusive work environment, in which all members can thrive and achieve their goals. Group members should be mindful of how their behaviour will be perceived by others, and approach interactions with mutual respect. While differences of opinion and conflicting needs are inevitable in a workplace, being a good colleague starts with operating in good faith: colleagues will usually be willing to work together to find a solution. Problems are more likely to be grounded in misunderstanding or poor communication than bad intentions or hostility.

Conduct in meetings

The WIN Physics Group meets weekly throughout the academic year. Group members present their research and discuss publications. We expect all group members to attend regularly, though we understand that members inevitably have the occasional scheduling conflict. To ensure attendees respect speakers by giving their full attention, Physics Group meetings have a strict ban on use of devices (laptops and phones) during talks.

Discussion is a key component of research presentations, whether at Physics Group meetings or other seminars. The aim of discussion is to critically explore the strengths and weaknesses of a piece of research. Good discussions are stimulating, but it can also be intimidating for speakers. Discussions are inevitably more fruitful when they bear this in mind. Questions should be asked in a respectful and friendly tone, and focus on the research, never the individuals involved in the research. We aim for an atmosphere where people feel comfortable asking questions regardless of seniority. Individuals should be mindful not to dominate the discussion at the expense of others' participation.

Work interactions

Many of our desks are in "open plan" shared offices, which leads to members interacting closely with each other throughout their working day, for better and worse. Basic open plan etiquette includes avoiding distracting noise, not introducing strong smells, keeping your space neat, and being considerate of the people around you who may have different needs/preferences (e.g. room temperature, lighting). We encourage you to personalise your assigned space, but avoid potentially-offensive decor, and not to spill out into the adjacent space (including hot desks, which are intended for short term visitors). Helping to care for plants, organising tea breaks, and simply greeting your colleagues cheerfully are great ways to foster a friendly open plan community.

Whilst we actively encourage communication, try to be mindful of others and your surrounding environment. If a conversation is not work related, consider moving to one of WIN's social areas. Similarly, phone or video calls are best taken away from open

plan spaces. Longer work-related discussions can take place in meeting rooms, which can be booked, or used on short notice if empty.

As more of us work in part from home, we increasingly meet via online video platforms, which require new norms. Many people find video meetings more draining than in-person interactions. Some people benefit from social cues provided by webcams, while others find being on camera distracting or uncomfortable. We encourage members to find ways of participating that balance the benefits of social interaction against these challenges, and to understand that the needs and preferences of others may differ. If recording video meetings, this needs to be announced at the start so that participants can adjust accordingly.

Socialising

Building a cohesive group means getting to know each other, often through interactions as part of the working day. We want everyone to feel welcome at these gatherings. Group members often have lunch or tea together at work, while others prefer to socialise outside of working hours. We regularly gather at a local, family-friendly pub after work or over lunch, particularly to celebrate successes. Alcohol consumption is optional, and although we aim for an informal atmosphere, professional behaviour is expected at all times. We encourage anyone who is keen to organise other events to do so: for example, games nights, hikes, or picnics. It is important to emphasize that none of these events are obligatory, and non-attendance will not impact our commitment to your professional development.

Inappropriate behaviour

We expect all group members to contribute to a positive atmosphere grounded in mutual respect. Nevertheless, inappropriate behaviour can unfortunately happen. Unacceptable behaviour includes bullying, harassment, victimisation and discrimination. This can include actions or words, and does not necessarily have to be in person. We do not tolerate this kind of behaviour. If you feel you have been subject to harassment, do not hesitate to contact your supervisor(s), a harassment advisor, WIN Human Resources (staff) or NDCN Graduate Studies (students).

We also want to encourage group members to look out for each other. If you witness or suspect a person is being subjected to inappropriate or unwanted behaviour, you can discuss it with them confidentially, or raise it with a PI or harassment advisor. For relatively minor cases (e.g. inconsiderate interactions that stop short of bullying), you can also speak to the person who is behaving inappropriately if you feel comfortable doing so: often, they will be unaware of how their behaviour is being perceived. Most importantly, you should not feel you have to resolve the situation yourself: there are resources and mechanisms available to address these situations, listed below.

University bullying and harassment resources

- Harassment policy, including definitions of behaviours constituting bullying and harassment
- Resources and advice, including links to procedures for complaints against staff and students
- Responsible bystander advice (i.e. standing up for others)
- Harassment advisors in NDCN

Work and Wellbeing

Like many rewarding career paths, research can be stressful and demanding. Looking after your long-term wellbeing is crucial to being able to achieve your full potential. While work can be fulfilling, it is only one part of life: we want our researchers to have a good work-life balance. In recognition of these considerations, we aim as much as possible to have a welcoming and relaxed atmosphere, with a culture promoting the importance of wellbeing.

Setting expectations

One key aspect of being happy in your career (and life!) is having clearly articulated and agreed expectations that are realistically achievable. It is important to agree target timelines for projects with your supervisory team. At the same time, it is important to remain flexible: research involves fundamental uncertainties that make it difficult to predict how long a given task will take. It is important to be understanding, with yourself and others, when timelines slip. Communication is key to managing your own and others' expectations, and setting work boundaries. If you feel that your workload is impacting your personal wellbeing, reach out to your supervisor/line manager.

Working hours

In general, we do not dictate expected working hours, although some research projects or positions may dictate specific working times, and PIs differ in their ways of working. Most importantly, we do not encourage long working hours (for example, regularly working evenings/weekends): while short term gains can sometimes be made, it is rarely sustainable; burn-out can undermine longer term progress, and is detrimental to mental wellbeing & enjoyment of work. Achieving agreed research goals is far more important than the number of hours worked. That said, the demands of research do mean that some periods will inevitably be more intensive than others, such as the build up to major deadlines (e.g. conference abstract submissions, fellowship applications).

Group members are not expected to spend their whole working day at the lab. Naturally, experimental work typically necessitates attendance, but much work can be conducted elsewhere if that is more productive. That said, we do encourage regular lab working: you will learn a lot by interacting with your colleagues, which happens more organically in person. We encourage researchers to find a schedule and approach that works for them personally, to discuss this approach with their supervisor, and to raise concerns if they are finding it difficult to be productive.

Physics group members should not feel obliged to respond to work-related topics (e.g. replying to emails) outside of their own working hours. Similarly, other group members should respect the working hours of their colleagues: your schedule may not coincide with theirs; mutual respect in this instance benefits the entire group.

Work-life balance

Actively cultivating a healthy work-life balance is an important way to manage the stresses of academic research. Work-life balance includes making time to take care of yourself: socialise, exercise, sleep, etc. It can also mean scheduling time for necessary personal activities, including caring duties, healthcare appointments or disability needs.

Beyond limiting daily working hours to sustainable levels, we strongly recommend taking several holiday weeks per year completely away from work, including work-related email. Our PIs lead by example in their own lives by taking regular holidays. Staff and students have an annual holiday allowance of 38 days (including public holidays). Timing for your holidays is generally up to you, but your supervisor may ask you to work around other constraints, e.g. if you work on a collaborative project. It is important to agree your holiday with your line manager, clarify your intentions regarding email during your holiday, and set an auto-reply including your anticipated return date.

The University provides resources to address demands that can impact work-life balance, including support for carers and parents

Mental wellbeing

We all have mental health. Whilst some of us may have particular vulnerabilities to mental ill-health, we will all naturally fluctuate up and down a spectrum of struggling, striving, and thriving. One important goal in improving academic workplace culture is to make discussions around mental health more normal and accepted, similar to discussions about physical health. Simply asking someone “are you feeling okay today?”, and being willing to listen if they are not, can make a huge difference. Your main job is to listen: if a colleague isn’t feeling okay, you can always refer them to this handbook for some ideas of where to find further support.

Time to relax away from work is one critical contributor to mental wellbeing. If you are feeling mentally unwell, you can take a mental health day, i.e. a day of sickness absence to rest and relieve stress. The university has a standard annual allowance of sick leave, including mental health days, for staff, and similar provision for students. Importantly, you should *not* feel obliged to explain why you are taking a mental health day with your PI/line-manager. If you are uncertain what resources or opportunities are appropriate for your mental health needs, you can discuss this with your supervisor, human resources (for staff) or NDCN graduate team (for students).

University wellbeing resources (including for student wellbeing) can be found here.

Member Networks

win pride

LGBTI+ Members and Allies

win Access

Disability, Chronic Illness & Neurodiversity

MOSAIC

Racial & Ethnic Diversity

GLOW

Women in Physics & Engineering

Equality, Diversity & Inclusion

Why EDI?

Our group members come from a broad range of backgrounds. We are firmly committed to creating an inclusive environment that celebrates our diversity and promotes equal opportunity. Every group member is expected to actively help cultivate a culture of inclusivity and respect. This is not only important for people to feel welcome in the group, it benefits us professionally: research shows that diverse groups are more innovative and perform better.

The personal and the professional

EDI issues range from deeply personal aspects of an individual's identity, including those with more obvious professional significance. Across this range, every person has a unique intersection of lived experiences. While we recognise that some people prefer to keep their work and personal lives separate, we want everyone to feel comfortable bringing their "full selves" to work. We aim to create an environment where this is possible by understanding how our differences interact with both our professional and personal lives, and influence our individual aspirations and needs.

A few examples to consider:

- People with disabilities (including hidden disabilities) or neurodiversities may require flexibility around meeting formats, durations and scheduling. Being flexible without asking for justification can be enormously helpful to individuals who may be uncomfortable discussing these topics.

- Travel to some countries can feel unsafe or unethical based on issues relating to gender, sexuality, race, or religion. It also presents challenges associated with disability or caring duties. We often assume individuals relish the opportunity to travel, but in practice, this is not always the case.

- People from the LGBT+ community often describe being exhausted by having to either repeatedly "come out" at work, or avoid discussing their personal life. Communicating acceptance can be done through non-presumptive language about partners (they/them not he/she). This becomes natural with practice.

EDI frequently intersects with mental wellbeing, and difficulties in feeling included can contribute to mental ill-health. WIN aspires to improve workplace culture relating to wellness and mental health issues, with a Working Group championing this issue as a strategic focus in 2020-21. PIs also receive training on how to support group members. They can talk through issues you face, whether or not they are your direct supervisor. They will treat any such conversation as highly confidential, provided it doesn't ethically compromise the PI or pose a risk to your wellbeing. Note that PIs cannot be held responsible for the resolution of problems, and sometimes the best approach for a PI is

to signpost to more formal resources available.See the Roles & Expectations section for more detail.

Building communities

EDI spans a broad range of topics and issues. Many of these issues are unfamiliar or uncomfortable when first encountered. WIN holds regular educational events that aim to normalise respectful and thoughtful conversations on these issues, particularly around how they are manifested in academia. These sessions aim to help you understand the issues your colleagues face and how you can act in solidarity. We also encourage everyone to consider engaging with WIN's member networks dedicated to different communities, including racial diversity, LGBTI+, disability, and women in engineering. This is one key way WIN aims to support our members and promote inclusive environments.

EDI resources

- More information about WIN's EDI strategy: https://www.win.ox.ac.uk/about/edi/equality-and-diversity
- The University EDI policies and initiatives are managed by the Equality and Diversity Unit. They also provide training on EDI matters, for example LGBTQI+ Ally training, racial bias training: https://edu.admin.ox.ac.uk/home
- University occupational health, incl. mental health resources: https://occupationalhealth.admin.ox.ac.uk/mental-health
- Student specific wellbeing: https://www.ox.ac.uk/wellbeingatoxford
- Calendar of significant EDI dates, including religious holidays: https://edu.admin.ox.ac.uk/equality-dates
- University policy surrounding annual leave for religious holidays: https://hr.admin.ox.ac.uk/holiday-entitlement

Good Citizenship

The success of WIN is largely down to individual members pitching in to help each other. As a member of the physics group, you are strongly encouraged to get involved with some form of lab service. There are plenty of opportunities to get involved - being a good citizen ensures the smooth day-to-day running of physics group activities.

Teaching

The FMRIB graduate program is an annual course for WIN members to learn the background physics of MRI, neuroimage analysis, and related topics. This course relies on WIN members to volunteer for teaching, marking, and general support. Teaching also provides benefits to those who take it on: you gain a more thorough understanding

of the topics at hand, valuable communication skills, and the opportunity to engage with colleagues from a range of research backgrounds.

Advising colleagues

You are likely to encounter situations where other members of the group have expertise in an area where you need help, and vice-versa. We expect all members of the group to help colleagues when possible - in many cases, even something as simple as responding to a group member's *Slack* question can save them hours of troubleshooting and research time. In the event that you find your expertise to be in so much demand as to create a burden on your time, please discuss with your supervisor.

Group administration

A research group as large as the WIN Physics Group incurs a broad range of administrative tasks: organising group meetings, updating our website, overseeing scanner bookings, etc. These jobs are rarely glamorous, but are necessary. Our group ethos is that everyone should help with these tasks from time to time, but no one person should be unduly burdened. When tasks come up that you feel you could help with, volunteering is the best way to support the continued functioning of the group.

Volunteering for studies

Some of our research involves recruiting subjects to be scanned to test/evaluate acquisition or analysis methods. Volunteering for these studies is a great way to show your support for colleagues. However, this is not a requirement - there is *no* expectation for WIN members to justify their choice if they do not wish to be scanned.

Finding a balance

Good citizenship activities can be time consuming, and it is important that they do not significantly impact on your research progress. It is important to ensure that you are able to find a balance between being a good citizen and research progress. We also recognise that not everyone has the capacity to take on additional work - for example, due to disability or caring duties. We recommend discussing any potential activities that may take time away from your main research with your PI.

Sharing resources

Many of the resources we use for our research are shared with other members of WIN. Part of being a good citizen in the group is to be courteous, and share these resources responsibly.

Shared equipment, tools and resources are often managed by an individual - find out the rules around using these resources and stick to them. Leave equipment in a state suitable for others (e.g. leaving the scanner suite tidy after an imaging experiment). Do not assume you can borrow equipment without obtaining approval first. When there is

high demand for a resource, keep people informed if you are experiencing delays (e.g. an overrunning experiment), and be willing to cut your use short if necessary. If you feel somebody is unfairly using a shared resource, we encourage you to raise this with them, or alternatively with the resource manager/your PI/line manager.

Developing As Researchers

Career Development

Developing your CV

One key metric upon which researchers are evaluated is their publications, particularly journal articles. Publications demonstrate the ability to see projects to completion and open up opportunities to progress to the next career stage and are valued both in academic research and industry. While publications are most crucial at transitional points, academic researchers at all stages are judged based on their publications. The importance of publishing can create pressure to publish projects prematurely, leading to temptation to cut corners and risking reputational damage. It is not just the quantity of publications, but their quality (e.g. citation counts) that distinguish a researcher.

We encourage all members of the group to dedicate time to developing skills to help in their career progression. Although the group PIs have made their careers in academia, we recognise that not everyone wishes to do so, and that exciting and valuable contributions are made outside academia. Our role is to cultivate your skills and expertise for whatever path you hope to pursue, and to help you find the right next position when the time is right.

Participating in teaching, public outreach, or committee activities is considered beneficial not only for the individual but also for WIN as a whole. Naturally, it is important to balance these activities to avoid a negative impact on your research progress. We encourage group members to discuss their plans regularly with their supervisors, who can help you weigh the benefits of a given activity and suggest opportunities that match your interests.

Career progression

We consider WIN to be an incubator for young talent. When it comes to considering the next career move, we are dedicated to helping individuals prepare their applications, regardless of whether they aim to secure a fellowship in Oxford, take up a teaching post at another institution, or move out of academia. We are happy to read applications and help you practice interviewing skills. We can also put you in touch with alumni and colleagues who can offer advice for non-academic job hunts.

Members of WIN Physics Group have moved to Universities as far afield as Stanford, Toronto and Tokyo, widening our network and the WIN family. Senior members have established relationships with academic and industry colleagues world-wide and can often provide an introduction. Transitions into other careers have included former members of the group entering scientific journalism, management consultancy, teaching, biotech startups, and the healthcare industry.

Research fellowships

We are particularly experienced with securing personal research fellowships. Writing successful fellowship applications requires considerable time and skill, and interviewing for fellowships requires practice. Several members of the WIN Physics Group have been successful in securing research fellowships, and they are keen to pass on their hard-won knowledge. Don't hesitate to ask for advice from them.

Finally, a note on college affiliations: as a 100% research department we have no undergraduate teaching and therefore few college positions. However post-doctoral researchers may apply for junior research fellowships at Oxford colleges and conduct their research in the department. Some of these fellowships include salary funding, while others are purely a college affiliation (e.g. with dining rights).

Open & Responsible Science

Open science

Open science practices serve multiple goals for the scientific community in which we all participate. It facilitates reproducible research and accountability for data and findings, and it helps the field move forward more rapidly by avoiding duplication of effort. There is an efficiency gain that comes from sharing of data resources, where the overhead of data collection or acquisition is only incurred once, while the data can be reused for multiple different research questions. Open code and data also serve as a learning resource for those studying your work or looking to enter the research area, and it can also provide a conduit by which potential collaborations can be formed. Finally, preparing materials for open sharing promotes code and data "cleanliness", including comprehensive documentation, which also makes handing projects off to new students or colleagues much easier.

Adopting open science best practices is also in line with increasingly common initiatives from funders and publishers regarding code and data availability. As a Wellcome funded centre, the WIN also has to conform to certain open access publishing requirements, details of which can be found on the Open WIN community website.

Reproducible research

Keeping your research outputs (code, data, figures, etc) in a reproducible state greatly facilitates the ease of returning to it at a later date. Common examples of this are returning to your first project when writing up your thesis, often with a time-span of years in between, or addressing requests for revisions on a paper submitted months ago. In both cases, you will have a much easier time getting right back into things if the project was left in a reproducible state. This also helps promote research continuity within the lab, transitioning projects and research between students and/or post-docs. In general, ensuring your work is reproducible is good scientific practice for documenting and catching mistakes in your data processing or analysis. The added bonus is that you are in a good position to share these materials on open platforms, which is increasingly recognised as additional research outputs and garners citations for your work. Finally, we emphasise that catching mistakes should not be treated as a past failure - it is an

important aspect of good scientific practice and a key part of the research process. Mistakes happen to everyone, and having reproducible research outputs provides you or others a better opportunity to catch and correct inevitable errors. Our experience is that catching and owning your mistakes builds respect in the scientific community.

Resources and tools for reproducible research practices can be found on the Open WIN Tools webpage.

Research conduct

Our group is wholly committed to ethical and responsible research conduct. While the academic research environment can feel pressurised, there is no end that justifies dishonest or unethical means. We expect that most people will have a good internal barometer for what is and isn't ethical conduct. Nevertheless, research requires decisions that range from high-level design down to seemingly inconsequential choices, all of which can contribute to the overall ethical health of the project. Please talk to your PI or line manager if you are unsure about the ethical implications of any given action, if you feel pressure to engage in ethically compromising behaviour, or if you observe research misconduct happening around you. If you feel that your PI is asking you to engage in practices that you are uncomfortable with, it is always best to respectfully raise your concerns with them in the first instance. Many such situations reflect a genuine miscommunication or misunderstanding that can be rapidly cleared up with a frank conversation. However, if you feel your concerns are not being given serious consideration by your PI, please talk to a secondary advisor, head of group/division, or a trained harassment advisor. WIN is completely committed to providing a safe and supportive research environment, and you can also turn to any PI or senior member of the centre if you need to speak to someone outside your supervisory team. If the issue cannot be resolved locally, there are central university guidelines on procedures for reporting research misconduct.

Collaborating

Why collaborate?

Collaboration in research enables researchers with different backgrounds, skills and experience to work on different aspects of a project, generating results that cannot be produced by any one individual. Much of the success of WIN is due to its collaborative nature, combining expertise in physics, analysis and neuroscience. Even individuals with common expertise can produce more innovative and impactful research by exchanging ideas. From a career perspective, collaborations often lead to co-authorships, which boosts your publication record. For potential employers or funding bodies, it demonstrates your willingness and effectiveness to work as part of a larger team.

When to collaborate?

Although collaboration is almost always beneficial for all involved, it represents a commitment that should only be undertaken after careful consideration of the costs and benefits. If a colleague proposes a collaboration beyond minor tasks (e.g. “could you share the line code you used to do X?”), you should discuss with your supervisor. Delivering your main project on time is your primary responsibility. While rewarding, collaborations can slow progress on your project, and over-committing risks not delivering for collaborators. Based on their experience, your supervisor may feel that it is not a good investment of effort or a poor match to your expertise. If you both agree that the collaboration is worthwhile and feasible, your supervisor can help you manage the collaboration. If you and your supervisor cannot agree on whether to take on a collaboration, you can seek advice from an independent PI.

Setting expectations

At the outset of a collaboration, it is a good idea to be clear on the amount of work you expect to contribute, as well as expectations around publications. If the time commitment is small, an acknowledgement and/or citation of one of your papers may suffice; major intellectual or time contributions often warrant co-authorship. There are no universally-accepted formulas, but senior academics usually have a good sense of norms for co-authorship. If you and your supervisor feel that an authorship is warranted, then you can expect your supervisor to negotiate this on your behalf. They will also have a feel for when this discussion should be had: while it is good to discuss as early as possible to manage expectations on both sides, often it is not clear from the outset whether a contribution will reach the level of co-authorship. When it comes to considering whether to offer co-authorships on your papers, discuss this with your supervisor early and revisit when it comes time to publish. The physics group tends to err on the side of inclusiveness: in addition to collaborators providing useful comments on manuscripts, this creates a motivation for reciprocation if appropriate and avoids tensions that can hamper future work.

WIN Authorship Guidelines can be found here. Some key points from the current guidelines are:

1. Co-authorships can be a condition for early access to tools or datasets, with the understanding that these early use collaborations often involve a smaller time commitment than other co-authorships.
2. Researchers should consider offering co-authorships to WIN core staff (physicists, radiographers, experimental & IT support) who have had significant, direct involvement in your study.
3. Prior to submitting a manuscript to a journal, you are expected to circulate the details to WIN. This enables colleagues to speak up if they feel they should be included as a co-author. A few weeks prior to submission, email the details to admin@win.ox.ac.uk for inclusion in the Monday Message.

Note that these guidelines evolve with time and that collaborators from outside the WIN may have different guidelines or expectations.

Travel and Conferences

Research often brings travel opportunities, ranging from collaborative visits to conferences. Whilst travel can be a perk of the job, it can also present challenges. Travel can be a hardship for those with disability or caring responsibilities, and people may feel travel to specific places is unsafe or not morally justifiable. You should not feel pressured to travel, and if you don't/can't travel we aim to avoid this disadvantaging you in your career. A PI can discuss your concerns and advise on means to alleviate them (e.g. hardships funds or alternatives to travel).

Conferences - the basics

Travel for early-career researchers most commonly centres around conferences. Conferences can provide a fantastic opportunity to present your work and engage with researchers from other institutions. A conference typically includes scientific talks, posters and educational sessions. We regularly attend a range of conferences, from small (50-100 attendees) to large (many thousand attendees). If you find a conference you want to attend, talk to your PI to decide together if it is suitable. Considerations include: match to your research topic, readiness of your research for presentation, opportunities to learn, availability of funding and timing.

Planning & what to expect

The primary aims of attending conferences are to present your research (and represent the group), and to learn about your field. It is important to use your time wisely at conferences: the costs of travel, registration, and your time add up, so you should expect to be busy.

Planning ahead is often key to ensuring you make the most out of large conferences with parallel sessions. Plan out each day ahead of time in terms of which sessions you will attend. If scientific abstracts are released ahead of time, read those relevant to your research and decide which sessions are your top priority. It is often useful to discuss your plan with your supervisor. If you want to speak to a researcher but can't attend their session, consider arranging a different time to meet them. Most importantly, ask questions and be curious - most people love to talk about their research. These discussions can lead to new insights, collaborations, and often long-term friendships.

Conference activities change with career stage, incurring committee and collaborative meetings later in your career. PIs often rely on early-career researchers in their groups to attend the scientific sessions they cannot - so just because your PI isn't attending a session, it doesn't mean you should skip it.

Looking out for labmates

While it is rare, people do sometimes end up in vulnerable situations during work travel. At most conferences you attend, there will be other lab members present. We act as a team, both in the lab and at conferences, and we expect lab members to look out for

each other. We recommend exchanging phone numbers before you travel (creating a shared message thread on an agreed platform), and arranging daily check-ins with at least one other person from the group, often over a meal or at conference social events.

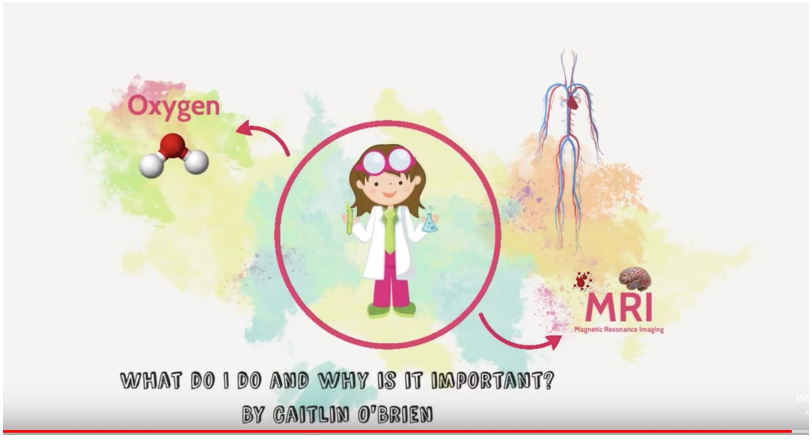
Conferences often have organised social events, which can be genuinely fun. These can be a great opportunity to meet and get to know other attendees, but there is no obligation to attend. Social events often include food and alcohol, but no one should feel pressured to drink, and professional (even if informal) behaviour is expected at all times. If you are attending a social event, let someone know your plans and ensure you plan safe travel back to your accommodation.

If you see a colleague who appears to be uncomfortable in a given discussion, whether at a social or scientific event, consider whether you can quietly help them out of the situation. One way to intervene is to simply inject yourself into the conversation. Some groups agree a key phrase that can be used to exit the interaction, which can also have an agreed safe response (“Karla was looking for you, I think it’s urgent” - “It’s okay, I spoke to her already”). Should you encounter problematic behaviour by a conference attendee, please talk to a PI or conference organisers.

Travel administration & logistics

There are a number of details that need to be arranged before travelling. Researchers need to consider what funding sources are available to cover travel costs, and register with the university travel insurance scheme. For some researchers, sufficient time must be given to account for additional considerations (e.g. visa applications, arranging suitable childcare). Further details on these logistics are available in another handbook.

Think you can explain your research to everyone? Click on the images below to see public engagement videos created by WIN Physics members.

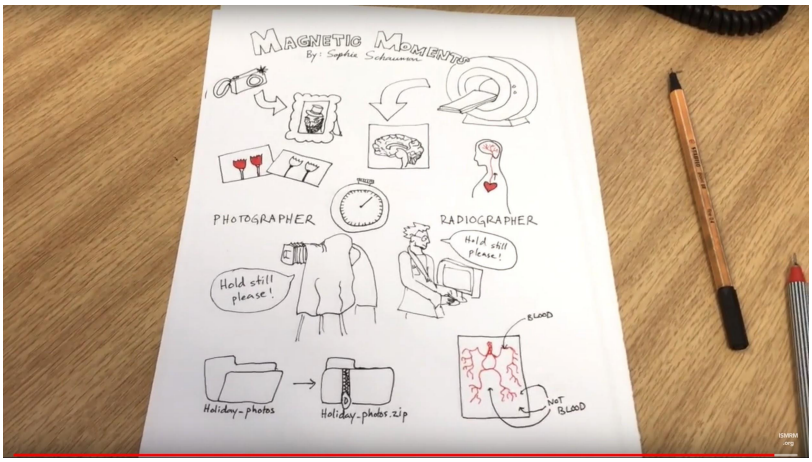


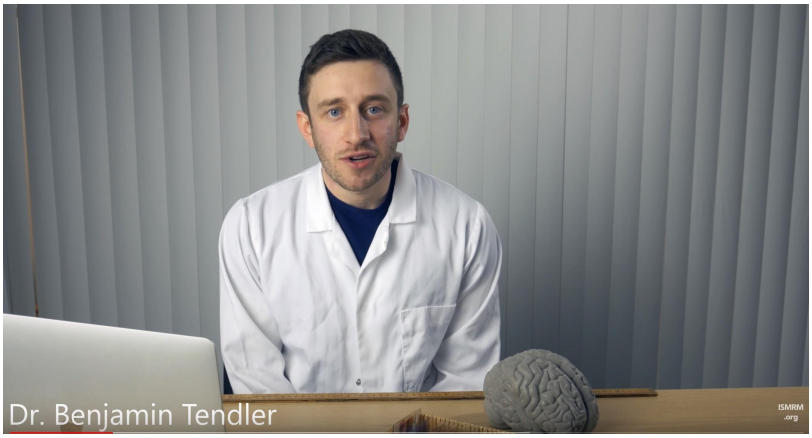
MRI and Treating Stroke

Caitlin O'Brien

Making MRI Faster

Sophie Schauman





Investigating Cells in the Brain

Benjamin Tendler

Public Engagement

Much of the research we do is supported by public funding, whether through government or charitable means. We have a responsibility to engage with this key stakeholder in our research to explain why this funding is important. The WIN Physics Group has a very long history of public engagement. We are also extremely fortunate to have generous funding from Wellcome to enable exciting and innovative engagement.

As well as it being our responsibility to engage, there are other benefits:

- Improve your communication skills, by learning to explain complex ideas to a general audience.
- Motivate your work through a closer connection to those who ultimately benefit from our research.
- Gain inspiration from the public, and meet fellow scientists from other research areas.
- Enjoy the opportunity to pass your enthusiasm for science on to others

Get involved with existing events

WIN runs a number of public engagement activities that welcome anyone to join in with. These include:

- *Big Brain Roadshow* – Targets 12-14-year olds. Involves a short play (including a physicist) and stalls where students get to learn all about the brain and brain imaging. See a video here.
- *Primary school programme* – Supports maths and science learning in secondary schools, by linking their learning with brain and imaging research. A great opportunity to show maths in action.
- *Museum 'lates' event* – Evening events that allow adult audiences to engage with our research in a fun way. We have a range of 'fairground' themed activities including a 'hall of mirrors' description of shimming.
- *SHElock Holmes* – A whole day of brain discovery for girls aged 11-14 years which aims to increase their scientific confidence and curiosity through a series of interactive workshops.
- *The Neuroscience Experience week* – Sixth form students visit WIN for a week. A mixture of talks and complete practical experiments, including a day devising, running and analysing an fMRI experiment.
- *Mental health, healthy aging and patient engagement* – Roadshows for community centres and groups, with researchers who are investigating topics of interest to adults.

As you get more confident…

- *Magnetic Moments* – The challenge in this competition is to explain your science to the public in 3.5 minutes, with prizes being awarded for the best presentations. WIN has run the competition, and had several members of the group win awards. Check out the videos here!
- *In2Science* – A programme where secondary school students from disadvantaged backgrounds are given a few weeks placement in a research group over the summer holidays.

Become a Public Engagement Ambassador

Each year, WIN appoints six Public Engagement Ambassadors. These ambassadors are given a range of training and dedicated engagement opportunities and encouraged to develop their own ideas for engaging with the public. The call is made every November, and appointments last for the calendar year. They are open to anyone in WIN.

Develop your own idea

If you are passionate about public engagement, and have the support of your supervisor or line manager, then WIN can support you to develop your own public engagement idea. This can include support to refine the idea, practicalities, and help to find funding. For example, *SHElock Holmes* (see above) was developed through the ambassador program by Amy Howard, a member of the group who is a keen advocate for women in science.

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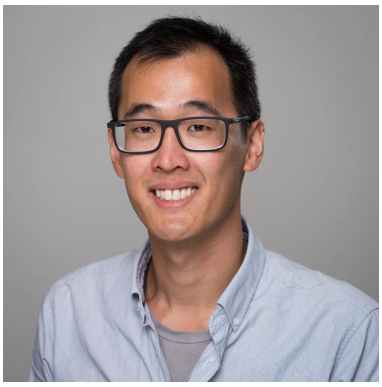

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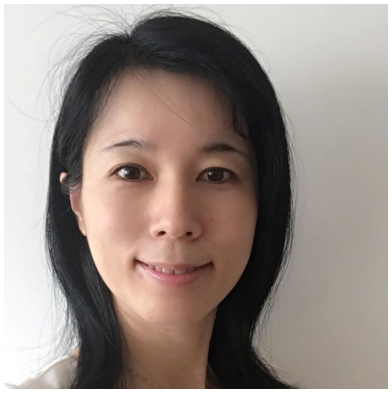

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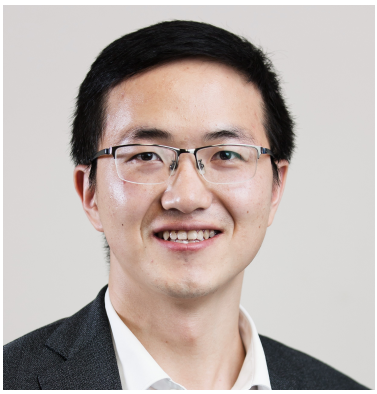

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