

Institution: Keele University
Unit of Assessment: UoA33 Music, Drama, Dance, Performing Arts, Film and Screen Studies
<p>1. Unit context and structure, research and impact strategy</p> <p>Introduction</p> <p>Music is a small UoA with extensive research outputs and impacts that belie its size. The unit consists of Bell (Performance), Blackburn (Electroacoustic composition), Montero-Diaz (Ethnomusicology), Spasov (Electroacoustic and Instrumental Composition), Uduman (Instrumental Composition) and Williams (Musicology). Fischman and Vaughan (both retired in 2018-2019) remain affiliated as Professor Emeriti, while departed colleagues Garro, Grimes, Kelly, and Reyland all contributed to the UoA's lively research culture and community, with Kelly retaining her connection as Visiting Professor since 2017.</p> <p>The unit is supported by a team of 12 hourly-paid staff overseeing instrumental tuition and two music technicians supporting music technology innovation. Music is one of five disciplines in the School of Humanities within the Faculty of Humanities and Social Sciences. The unit has begun a strategic shift in aligning itself within the broader context of the University's Creative Digital Media initiatives, with newly proposed degree programmes to start in 2022 that will develop closer connections with provision in Media, Film Studies and Creative Writing. This direction has been steered by the UoA's focus upon contemporary research together with the goals of the School to create a collective 'Digital Media and Arts Hub', with the longer-term goal of fostering new opportunities for inter- and multi-disciplinary working.</p> <p>Unit Context and structure</p> <p>Since 2014, the unit has focused on developing a thriving and vibrant research environment, success of which is evidenced by its production of over 70 research publications, increases in average research income per staff member (up 21%) and PhD awards (up 37%). The Unit's long-term strategy, initiated in REF 2014, was to strengthen its focus on 20th- and 21st-Century research areas. This strategy has been successfully executed during the current REF period and has been highly effective in providing points of collaboration across our small team. Consequently, common research areas across the unit demonstrate high levels of synergy and interconnectedness between practice-based and musicological research, building meaningful connections across wide-ranging genre and practice specialisms within the team. As a result, the two interlinked groups presented in REF 2014 have been extended from (1) practice-led research in composition and technology, and (2) text-based research in musicology, to the following four strategically supported research clusters reflecting our research activities during the current REF period:</p> <p>(a) Musical intertextuality: Blackburn's article 'The Terminology of Borrowing' (2019) presents a thorough assessment of over 70 electronic music works articulating a novel framework for considering musical borrowings, while Williams's investigation of historical allusions in his article 'Genres and Theatres: Wolfgang Rihm's Opera Fantasy <i>Dionysos</i>' (2017) demonstrates how pre-existing genres are re-voiced in Rihm's opera. Uduman demonstrates a range of intertextual strategies within many of his compositions, including <i>Seven Bagatelles</i> for piano (2015) and <i>Dann klingt es auf</i> for violin, cello and piano (2016), which engage with direct quotations and borrowings.</p> <p>(b) Modernism: The meanings of modernism are explored across several of the unit's outputs including Williams's chapter 'Between Modernism and Postmodernism' (2018) and Reyland's article 'The Spaces of Dream: Lutoslawski's Modernist Heterotopia' (2015). Williams's research into modernism in European music provided the focus for a sabbatical in 2020 and connected with wider modernism research within Humanities at Keele, such as the Northern Modernist seminar (established in 2019).</p>

(c) Intercultural creativity: **Montero-Diaz**, **Fischman** and **Blackburn** have explored interculturality and inclusive practices in a variety of outputs. **Montero-Diaz** presents a novel assessment of the Peruvian white upper classes and the transformation of their musical tastes as a tool for conflict transformation in her publications 'Singing the War' (2016) and 'White cholos? Discourses around race, whiteness and Lima's fusion music' (2019). Exploration of the 'intercultural' is mirrored in **Blackburn's** articles on sampling: 'Instruments INDIA' (2014), 'Other People's Sounds' (2017) and journal issue on 'The Sound of Culture' in *Organised Sound* (2014), probing ethical issues of borrowing respectfully, while **Fischman's** multi-channel composition *Costa* (2014) incorporates multi-cultural materials from the Peruvian coast within the electroacoustic idiom, focusing on musical constituents of marinera (Creole folk), *landó* and *festejo* (Afro-Peruvian), and *vals criollo* (Creole waltz).

(d) Systems, software and music creation: Key developments in this area include **Fischman's** MAES digital glove system (2016) for controlling real-time timbral shaping and gestural control in extended-reality environments, as showcased in his work *La Jaula Invisible* (2016), and his NatNet2UDP software release (2018) based on Optitrack motion capture for live interaction, fulfilling a strategy set in 2014 to develop research towards time-based multimedia, extended-reality environments and immersive technologies. **Blackburn's** research into handling short soundfiles *en masse* within acousmatic music contexts has led to new composition methodologies trialled and tested in her own compositions, *Ice Breaker* (2015), *Snap Happy* (2017) and *Landline* (2018). **Spasov's** research into advanced interactive composition techniques using non-linear mathematical equations has led to a series of pieces including *Sabda Vidya no.2* (2014) and *Idiosyncrasies* (2019) via the development of the ENACTIV interactive multi-modal composing system and new Max MSP externals.

In addition to extending our multidisciplinary potential and additionality through the strategic design of our current research groups, the unit has also responded to REF 2014 ambitions to raise the profile of our research outputs and collaborations. This was achieved through introducing the Keele Music Forum (KMF) in 2014. The KMF plays a strategic role within the research environment, providing a platform for staff and invited speakers to convey the breadth of music and music technology research. This forum runs year-round, with four research presentations per semester. Guest speakers have included Fabrice Fitch (RNCM), Anne Hyland (University of Manchester), Miguel Mera (City University), Luis-Manuel Garcia (University of Birmingham) and Henry Stobart (Royal Holloway). Current PhD students Hateley and Shufflebotham have used this platform to present research on John Zorn (2019) and jazz improvisation research (2020) respectively. In addition to the KMF, since REF 2014 the University has introduced ArtsKeele (university arts program and exhibition gallery) which has become embedded into Music's research dissemination pathway, providing a successful programming mechanism showcasing excellence in practice-based research emerging from Keele. This annual programme of music, performances, poetry and fine art exhibitions connects with the wider public, attracting external audiences. **Uduman**, **Garro** and **Spasov** have all made use of this public engagement platform. For example, **Spasov's** premiere of *Dolce Armonia* for bass clarinet and piano was programmed as part of this series in 2019 and **Uduman's** *Dann klingt es auf* for piano trio featured in 2017.

Research strategy

Our overall approach has been one of fostering innovation through collaboration in line with Keele University's Knowledge Exchange and Research strategy. Within the unit, staff members have joined forces on complementary research areas, enabling co-investigated projects to flourish, as in the case of the *Sensor Assisted Bass clarinet Research* (SABRe) project shared by **Spasov** and **Uduman**. Enhancing communication and intersection between instrumentalists and computer technology within interactive music has enriched the repertoire and technical performance praxis of the contrabass clarinet via collaborative work with the Institute for Computer Music and Sound Technology, Zurich (see Impact Case Study). This collaboration has led to the first CD compilation publication of contrabass clarinet music (Sarah Watts, 'Into the Depths', 2020).

Prioritising public engagement opportunities has been a strategic move to embed non-academic audiences and beneficiaries within research design. This is exemplified in the unit's participation

with Keele's Community Animation and Social Innovation Centre (CASIC) established in 2014. CASIC, as a collaboration with New Vic Borderlines (the outreach department of the award-winning New Vic Theatre, Staffordshire), enables Music staff to explore projects within democratic research environments where traditional knowledge hierarchies are dissolved to facilitate creative dialogues between academia and the community. **Montero-Diaz's** pilot research into music as a 'technology of conflict transformation' in the community used this platform, while **Fischman's** immersive environment project, *Potters' Plate Poetry* (2015) created for the 3D Keele Active Virtual Environment (KAVE) as part of the CASIC Connected Communities Food Festival (2015) was supported through a £14K AHRC Connected Communities Festival grant shared with the Business School (**Fischman** as CI), with the aim of engaging local community members on the themes of healthy eating, sustainability and community living, contributing positively to community members in Stoke via interactive sound art research.

The establishment of three Strategic University Research Institutes during this REF cycle, including the Institute for Social Inclusion (KISI), demonstrates the university's investment in stakeholder engagement. The Institutes have been conceived as collaborations between academic researchers and external partners and networks to address critical challenges and facilitate research impact. Support for **Montero-Diaz's** research into fusion music and social inclusion practices in Peru from KISI enabled wider dissemination and engagement to take place, providing a means of support for ICS development and enhancement. KISI provides a key platform for collaborations and partnerships given its membership, which includes community and civil society organisations, charities, faith organisations, education partners, businesses and creative organisations. Researchers can apply for KISI funds annually to support inter-disciplinary research network development, pump priming projects or partnership building and engagement events and £40,000 has been invested since 2017/18. **Montero-Diaz** received £1,500 towards her research on the role of music in social processes in contexts of current conflict and hyper-violent discourse, and in musical projects addressing trauma. In 2019, the Institute launched its annual KISI Active Partnership Programme (KAPP), which offers seedcorn funding for its non-academic members to propose innovative projects that address particular aspects of social inclusion in collaboration with Keele researchers.

Open research

The unit is at the forefront of developing an open research environment. Music staff work with partners to seek external funding for open research, and where this is not possible, pre-proof versions of journal articles are made openly available via Keele's Research Repository. This has enabled us to achieve an 100% open access compliance rate for this REF submission. This practice began before the current REF policy, and the unit goes beyond existing policy by making book chapters openly available.

Research integrity and ethics

As reflected by our compliance with the Concordat to Support Research Integrity, Keele is committed to upholding high standards of research integrity and ensuring work is conducted according to appropriate ethical, legal and professional frameworks and obligations. This is made effective and meaningful by embracing and applying the principles of the Concordat at Faculty level, in a manner appropriate to the disciplines and methodologies of the Humanities and Social Sciences. The Faculty has a specific research integrity policy, a dedicated research integrity champion, and tailored training and events. There have been seminars on informed consent and protecting participants' safety, research with vulnerable participants, and working with community partners; workshops on applying for ethical approval; and training on data protection. There is also specific training for PGR students.

Since the last REF cycle, the university has established a faculty-specific ethics committee to cater for ethical approval within the humanities. This strategy draws upon expertise from within the faculty, establishing a team who are greater attuned to the needs of humanities research. The Centre for Public Engagement was established to support the development of high-quality public engagement with research as a pathway to impact. These professional services staff work closely

with researchers in the unit to develop impact from research on a one-to-one basis as well as supporting the delivery of public engagement and impact training. Researchers from Music have made use of monthly Impact and Public Engagement drop-in sessions, joining colleagues with expertise in arts and cultural engagement, business engagement, knowledge exchange, communications and outreach to provide holistic support for the development of a range of pathways to impact from research.

Future plans

Looking beyond the current REF cycle, the unit has committed to the following plans:

- To increase the overall value of grant applications as a means of building capacity, improving outputs and facilitating more ambitious networking and engagement work.
- To grow doctoral student numbers in research areas related to new appointments. The UoA anticipates PhD numbers to grow further in areas of ethnomusicology, digital arts and creative practice stemming from the strategic staff appointments (see Section 2: People) and revisions to MA degree provision.
- To both align with, and feed into, university-wide strategies regarding sustainability, mental health, ED&I, and social inclusion, building research opportunities in subject-specific areas of these broader concerns, while increasing interaction with Keele's Institutes.
- To establish a research centre dedicated to interactive creative multimedia, building on staff expertise, institutional connections, facilities and knowledge, stemming from **Fischman's** lasting influence and legacy. Keele is uniquely situated to achieve this aim through its historical position in the emergence of new technology and its long tradition of innovation in music technology and interactivity.
- To continue pursuing infrastructural growth, focusing on performance venues and spaces for archiving Keele's historical electronic instruments and technology.

Engagement and Impact Strategy

Across this REF cycle, the university and the Faculty of Humanities and Social Sciences has facilitated the achievement of impact by enhancing professional support for impact activities and knowledge exchange, and investing in dedicated training, resources and forums for sharing best practice. The unit has intentionally explored a wider variety of impact-forming mechanisms, capitalising upon connections and affiliations staff have with non-academic bodies and community partners. Music staff have developed impact streams in cultural enrichment, advancing understanding, influencing policy and cultural programming with beneficiaries identified within local communities, school-aged learners, international concert audiences, musicians and commercial product development. The unit has an excellent track record of disseminating research findings to non-academics, for example, **Spasov's** real-time electronics composition, *Idiosyncrasies* was disseminated to approximately 170 Edexcel A Level Music students via remote learning e-resources studying live electronics works during lockdown in 2020, while **Montero-Diaz's** research on cultural citizenship delivered at the V SIMM International Conference - Social Impact of Making Music attended by members of the Colombian military in 2019.

Impact arising from the unit's research is supported by dedicated impact training, including a series of workshops organised by the university's Directorate of Research, Innovation and Engagement (RIE). These workshops draw upon internal and external expertise, with researchers participating in sessions delivered by Fast Track Impact, the New Economics Foundation and the Parliamentary Office of Science and Technology. A 'Celebrating Impact Conference', organised annually by RIE, provides a platform for showcasing impact arising from the unit's research, and for sharing best practice through these showcases and contributions from external organisations, such as the National Coordinating Centre for Public Engagement, Elsevier and Times Higher Education. The Faculty of Humanities and Social Sciences has facilitated the achievement of impact by enhancing professional support for impact activities and knowledge exchange, and investing in dedicated training, resources and forums for sharing best practice. The university's investment in a permanent Engagement, Partnerships and Impact Development Officer for the Faculty has impacted positively upon Music, extending and developing innovative ways of sharing research data with user groups and audiences.

In 2016, the Faculty launched its Engaged Research Network, which hosts a range of seminars and workshops and developed guidance on policy engagement, collaborative partnerships, evaluation, funding and public engagement. Staff members made use of this network, pursuing shared research agendas more readily with external partners. The network has fostered greater engagement with external organisations as a strategy to formalise research dissemination routes to non-academic audiences. This strategy has resulted in a host of national and international social beneficiaries. For example, **Montero-Diaz's** interaction with government ministers in Peru (2015-2019) and NGO 'Solar' (Peruvian government advisory body) continues to inform cultural programming events on a national scale, with the intention of tackling issues of social inclusion via innovative fusion music-making initiatives (see ICS). **Williams's** collaboration with the London Sinfonietta informing key decisions in concert programming for their 50th anniversary season drew upon his expertise to assist the ensemble in telling its story to audiences. **Williams** continued to influence concert programming of underperformed works, including Rihm's *Chiffre II (Silence to be Beaten)* and Henze's *Voices*. His role in contextualising performances of Rihm's monodrama *Das Gehege* for audiences of *La Monnaie* in Brussels (one of Europe's leading opera houses) demonstrates wider, international engagement activity drawing specifically on staff specialisms and novel research insights. **Fischman, Spasov and Uduman** as a research cluster, have dedicated their academic careers to the establishment of Keele's longstanding reputation in advancing real-time electronics within interactive music settings via new open access software and compositions (see Impact Case Study) developed in Keele's electroacoustic labs and specialist multi-channel facilities. Impact is also evident in streams of cultural enrichment (concerts) along with changes seen in composer communities (via uptake of new software, tools and devices for controlling sound when musicians and electronics are combined in interactive setups). Overall, the unit has observed significant positive changes within musician communities, where uptake and use of staff research is making discernible changes to performers' outlook, skills, performance techniques, agency and societal positions. These changes are far reaching, in international communities and diverse musical fields (contemporary music, folk and indigenous, Indian diaspora and English chamber orchestras) further demonstrating the unit's common interest in contemporary music research and its capacity for impact in this area. Connections with performing bodies, ensembles and individual musicians have developed since the last REF cycle: staff have built relationships with Ankara Quintet, Britten Symphonia, the Chamber Musicians of London, Duo Contour, Lovemusic Collective, Rarescale, and SCAW DUO for effective sharing of composition research to new audiences of contemporary music. These relationships have in turn supported musicians' profiles and professional development and in some cases enhanced performance practice and technique. Looking ahead, the unit has identified colleagues with potential future ICSs: **Montero-Diaz's** research observing LGBTI musical resistances in Latin America and **Blackburn's** sample pack engagement project which seeks to update representation of diversity on online distribution sites.

To enable and encourage future impact the unit aims to:

- (i) Increase the intensity of work with existing partners and non-academic affiliations at local, national and international levels, with the intention of establishing public engagement opportunities for research dissemination and uptake within cultural enrichment, policy, education and charitable sectors
- (ii) Further refine the process of embedding pathways to impact within research design, anticipating beneficiaries from the outset and planning stages
- (iii) Increase collaboration on multi-disciplinary bids to engage with a wider research base and public audience. This will provide a means to embed Music into Keele's Grand Challenges research relating to wider university research strategy.
- (iv) Continue support for staff involved in practice-based research, for example, publication schemes as a recognised and direct means for dissemination for widening audiences and user groups.
- (v) Continue our public-facing process for sharing innovation within music and music technology research using public platforms, broadcasts and press releases.
- (vi) Retain and expand engagement with musicians as beneficiaries, highlighted as an area of strength and growth within the unit's overall impact activity.

2. People

Staffing strategy

The unit's staffing strategy is aligned to Keele's People Strategy (2015-2020). During the assessment period, the unit has welcomed two new strategic appointments: **Montero-Diaz** in 2015 and **Blackburn** in 2019 have both developed new activity in areas of intercultural music, interdisciplinary working and public engagement. These appointments have strategically enabled broader research interests to emerge (including digital sampling, cross-cultural collaboration, citizenship through fusion music, and relationships between music and conflict, and community music) resulting in greater activity across disciplines and units, for example **Montero-Diaz's** research project "Musical journeys of charitable instrument donations" in collaboration with Professor Alex Lamont (Psychology) and **Blackburn's** research into the 'sounds of sustainability' and microplastic waste supported with input from Dr Deirdre McKay (Geography and Environmental Politics) and the Sustainability team at Keele.

Current staffing represents a balance between UK and non-UK (Peruvian, Sri Lankan and Macedonian-Canadian) nationalities and there is an improved gender balance in the current FTEs (3 males and 2 females). The unit displays a mix of career stages ranging from early career, mid-career, professorial and emeritus positions. Promotions since 2014 include **Williams** and **Spasov** to Professor, and **Garro** to Senior Lecturer. All staff preparing for promotion are provided with a mentor to support application development (with tailored support for females seeking promotion). The unit supports career pathways for full and part time staff, for example, **Montero-Diaz** was initially appointed as 0.5 in 2015 and **Bell** holds a 0.4 contract. Staff are able to apply for flexible working and remote working is permitted where needed and for those with caring responsibilities.

Equality, Diversity and Inclusion

Music is proud of its achievements and position on Equality, Diversity and Inclusion (ED&I) issues and, on its commitments to Athena SWAN (AS). Keele currently has an AS Bronze Award, a Race Equality Charter Bronze Award (one of only 14 in the UK) and an HR Excellence in Research Award. Keele is also a level 2 Disability Confident Employer. The AS Bronze Award has been displayed on job advertisements since 2014. Where women are under-represented, a positive action statement is included; positive action is also applied to encourage BAME applicants and people of all genders to all roles. EDI training (including 'bullying and harassment' procedures supported by awareness raising and training) in part of our induction processes for new staff and PGR supervisors. Senior colleagues receive additional training, including unconscious bias training (now being rolled out to all). Our commitment to EDI is also embedded in our structures the School has an EDI Committee (with an EDI Lead), which considers the EDI implications of decisions and procedures, this School committee feeds up to the Faculty and University EDI committees.

Montero-Diaz's collaboration with Stonewall (the UK's leading charity for lesbian, gay, bi and trans equality) resulted in the launch of the 'BAME LGBT Voices Documentary' at Keele (2019) featuring a range of BAME LGBT identities documenting the lived experiences of LGBT people of colour, placing emphasis on the importance of visible role models within all walks of society, including those in academic positions. **Montero-Diaz's** contribution to this documentary series provided a closer look at allyship underscoring the notion of 'acceptance without exception'. The unit's partnership with Stonewall was included in Keele's Race Equality Lecture Series and is an initiative leading the way in promoting issues of equality within HEIs nationwide, realising the shared vision of the unit and Keele to be 'sector leading' with regards to its commitment to equality, diversity and inclusivity. Keele has a LGBTI role model scheme, with **Montero-Diaz**, and the Faculty Dean for Research amongst their number and also has an LGBTI Allies Scheme, in which the Executive Dean is a member. ED&I is integrated into Keele's internal REF audit: all readers attended ED&I training, including unconscious bias and throughout the audit the gender balance was regularly reviewed within the reading group, including external readers.

Montero-Diaz was awarded a Keele Excellence Award (a prize recognising and rewarding achievements aligned to its strategic themes) in 2019 and received the regional Stonewall Role

Model of the Year' for the Midlands in acknowledgement of her commitment to inclusion and equality (2020) based on work identified in the University's Stonewall Workplace Index submission. Further to this **Montero-Diaz's** panel discussion on 'Ethnomusicology and Parenting' at the annual International British Forum for Ethnomusicology Conference (2018) instigated timely discussions on equal opportunities and Athena SWAN's importance in HE in the UK, demonstrating leadership in these areas grounded in the Aurora Programme. This contribution was a first attempt to discuss topics (gender equality, pay gap, parental support, inclusive environments and inclusive policies and equal opportunities) for LGBTQI, linking these topics to women's family/work balance and continuation of work in academia after having children to the ethnomusicology academic community. **Montero-Diaz** has undertaken training in the Aurora programme, acquiring leadership strategies as a woman in higher education to empower other women staff and students and build a more inclusive higher education environment. Both **Montero-Diaz** and **Blackburn** have fed into major research initiatives surrounding equality and diversity issues in Higher Education including contributions to the RMA's workshop "Interrogating Equality, Diversity, and Inclusion in Music: BAME routes into and through Higher Education" and case study data featured within the AHRC-funded 'Common Cause' project report (commenting on partnership work between BAME community groups and academics) in collaboration with the Runnymede Trust. The latter subsequently featured in the AHRC's Delivery Plan 2019, underpinning the AHRC's ambitions "for universities to achieve greater racial equality in research partnerships, for BAME voices to become more widely heard in UK arts and humanities research, and towards more equitable research partnerships in a range of other contexts" (AHRC, 2019). **Blackburn's** ongoing work with Milap (the UK's leading Indian Arts Development Trust) in educational music app development (Instruments INDIA downloadable app for tablet devices, released in 2016) and international commissioning of new multimedia works (2017) derived from the Instruments INDIA sound archive has demonstrated an example of good practice in working with non-academic partners and navigating BAME labelling. Their co-authored paper, 'Negotiating diversity and prejudice: a case study in successful cross-cultural collaboration' delivered at the Equality, Diversity and Inclusion in Music Higher Education conference, City University (2020) articulated strategies for sustained partnership working and sharing research agendas.

Staff development

The unit and the university have a full and active commitment to the principles enshrined in the VITAE Concordat to Support the Career Development of Researchers. Research training is available for staff at all stages of their careers and development. Early career researchers are assigned a mentor and receive reduced teaching workloads in the first years of appointment. Probation periods for new staff are three years for those entering their first academic post and one year for staff from external institutions. **Montero-Diaz** as an ECR between 2015-2020 was provided with a mentor and a reduced teaching load in line with university ECR policy. Staff research training provides a broad array of online courses and workshops, and highlights leadership development initiatives for women such as Springboard and Aurora, this also includes a female-focused promotions mentoring scheme and opportunities to draw on the academic (maternity) returners fund to support research activities. Staff with no prior supervisory experience are required to complete the 'Research Supervisor Development Programme' run by the Academic Development Team. In addition, colleagues with fewer than three years' experience of research degree supervision are allocated a supervision mentor (a senior colleague with extensive experience of successful supervision and completions) until they have seen at least one research student through to successful completion.

Research leadership training is provided, as is coaching for mid-career researchers. The Research Leaders Network provides a forum that brings together academics with leadership responsibilities across the university to discuss challenges and share best practice. These monthly development sessions are chaired by the Pro VC for Research and Enterprise and was established with the ambition of enhancing communication of research strategy to all research active staff. **Williams** and **Blackburn** have both participated in this initiative, feeding back university wide strategy and policy to the staff in the unit.

Research activity in Music and throughout the Faculty is monitored through an annual research plan process whereby research activity, outputs and plans are reviewed as part of the annual appraisal process. As such, annual appraisals (with embedded research plans) establish a structured and supportive approach to research and career planning which is enabled through the University publishing its Academic Role Expectations, including colleagues at all levels of the Education and Research job family.

Workshops on research council funding are set up via this mechanism, for example, Humanities researchers and those with track records of UKRI funding success supported **Blackburn** in her preparations for an AHRC ED&I Fellowship bid in 2020. Research achievements, including public engagement, feature prominently among Keele's promotion criteria as do experience of impact and case study contribution.

In terms of resources, staff within the unit have benefited from internal faculty research funding for conference attendance as well as small projects and networking opportunities. Keele is committed to providing regular research leave for all active researchers who meet a threshold of expectations for excellent research performance. Staff are eligible to apply for a semester's research leave on a 'one semester in eight' basis. Staff in Music have benefitted from this system of leave, enabling them to sustain their research, complete major projects, and apply for externally funded leave and grants. Example uses of sabbatical time include **Uduman's** completion and dissemination of a series of three compositions in 2019. In 2020, **Williams** used this period to start a monograph on modernism in European music from 1970 to 2010, focusing on the political music of Hans Werner Henze.

Research students

The unit hosts a vibrant and active PhD community covering a wide range of research interests and topics. Between 2014-2020, six doctoral students were awarded PhDs in areas of jazz studies (Balzarano), interactive generative algorithms (Prescott), British cello music (Thumpston), interactive sonification of body movement (Vasilakos), Audio-visual interactivity (Willy) and clarinet multiphonic techniques (Watts), representing a 60% increase in the average Doctoral awards per FTE in comparison to REF2014. A further six PhD students in areas of interactive immersive systems, audio-visual media, interactive immersive creations, popular music studies, jazz improvisation, and Japanese film music are on target to complete their doctoral degrees within the next REF cycle. The total PGR population during the period was 21 PGRs collectively, fulfilling the strategic aim outlined in REF2014 to increase postgraduate numbers by over 20%. The unit's PhD students have held prestigious AHRC studentships and AHRC International Placement Scheme awards; for example, Bayley carried out a five-month fellowship at the International Research Centre for Japanese Studies (2014). Prescott, who completed his PhD in 2018 went onto achieve a postdoctoral position as part of an AHRC *Create Fellowship* (2019-19) at Keele exploring the use of immersive technologies, namely AR and VR to produce new types of cultural experiences and entertainment in the creative industry. Balzarano is also part of the Keele Postdoctoral Fellowship scheme, enabling researchers to retain affiliation and library and IT access in support of their ongoing career development.

All PhD students at Keele are assigned a supervisory team (comprising first and second supervisors in areas of relevant research expertise). The student's lead supervisor has the subject expertise and the primary responsibility for the student, while the second supervisor has complementary expertise in the subject and/or methodology of the project. Students keep a Personal Development and Learning Plan recording their training needs, research objectives, programme of work, and supervisory meetings. Progress is monitored every six months in the first year and the student and the supervisor complete a joint report detailing the student's progress. These arrangements ensure that students can progress and complete, to the level required, on time. Students are provided with a PGR Advisor, as a source of support independent to the supervisory team. The University has also appointed a Student Mental Health Project Officer specifically for Postgraduate Support. In 2020 Keele launched its Doctoral Academy, which aims to provide a unified platform for PGR support, governance, and training.

Funding for PhD research in the department currently stems from two routes: the AHRC North West Consortium Doctoral Training Partnership and internal GTA positions. Hateley and Shufflebotham are both recipients of GTA scholarships and incoming doctoral student Smith was successful in securing an AHRC NWCDTP PhD funding in 2020. Distance PGR supervision is supported and all PGRs are provided with a workspace on campus. Supervision, training, support, and examination of PGR students is governed by the regularly reviewed and updated University Code of Practice on Research Degrees, overseen by the University Postgraduate Research Committee, while the formal progression and examination of students are approved by the University's Research Degrees Committee.

PhD student integration

PhD students within the unit are integrated within the wider university research environment. The School of Humanities holds an annual postgraduate conference for research and supports the student-led interdisciplinary postgraduate journal *Under Construction* (established in 2015). This journal posts bi-annual calls for student articles and provides PGR students with an insight into the formal procedures, requirements and timescales involved in peer-review publications. This initiative encourages submissions of work that ranges from early development of ideas through to research in its final stages, and was established in part, by Music students (Bayley in 2015) with Music PhD students featuring regularly (e.g., Prescott and Balzarano have written articles and music reviews). PGRs are also encouraged to contribute to external conferences and forums for dissemination opportunities to ensure that they understand the wider academic environment. For example, PhD student Vasilakos presented his composition *Ataraxia*, (2014) at the International Computer Music Conference (2015) and Balzarano regularly reviews music and releases for *Jazz Journal*.

The PGR research community within Music is enhanced institutionally by a combination of support from the KDA (training, writing retreats), the faculty (conference and research-related travel support), and the Keele Postgraduate Association (KPA): the latter offers access to bursaries for personal and academic development, community activities such as postgraduate coffee mornings, and trips. The KPA also runs a postgraduate bar and social space and a postgraduate awards evening. PGRs are also able to utilise NWCDTP training (including ArtsMethods @Manchester). In 2015, Keele hosted a NWCDTP training event 'Life after the PhD' focusing on career development, which Bayley and Balzarano attended. PGRs are also offered skills and careers support throughout their period of study. As the unit looks ahead to the next REF, the pathway to PhD will be enhanced via the validation of new MA degrees, the addition of new staff specialisms and continued membership of the North West Consortium Doctoral Training Partnership.

In the recent Postgraduate Research Experience Survey (PRES 2019), Keele placed tenth overall out of 107 UK institutions for the research opportunities offered to postgraduate students. With an overall satisfaction score of 86%, Keele featured in the highest quarter for research culture, research skills and professional development and also scored highly across many of the individual assessment categories, including achieving third place in the "Supervision" category.

3. Income, infrastructure and facilities

Income

In 2014, the unit aimed to secure major funding from UK and EU bodies for interdisciplinary research, as a strategy to build capacity with post-doctoral and early-career researchers. The unit has fulfilled this ambition, attracting research council income totalling £166K in this REF cycle. This RC income has achieved the goal of increasing external funding per staff member set out in Music's REF2014 environment statement. **Reyland** was awarded an AHRC Leadership Fellowship (**£50,994**) in 2015, which culminated in an edited collection entitled *Lutosławski's Worlds* in 2017. **Fischman** received funding of £42,523 as co-investigator on an AHRC Create Fellows scheme in 2018. This was part of the North West Creative Economy Engagement Fellowships (a total of **£264,323 was shared** in conjunction with NWCDTP institutions). **Fischman's** creative industries partner was New Vic Theatre Borderlines and investigated the use of immersive technologies, augmented reality and virtual reality to produce new types of

cultural experiences and entertainment in the creative industry. Tom Prescott was the nominated postdoctoral fellow for this project, which explored Intelligent Genetic Algorithms and gestural input to operate digital controllers in conjunction with multi-channel spatialisation. Kelly was awarded £160K for a European Union Marie Curie project (2015-2017) entitled 'Transnational Localism and Music after the two World Wars', which was shared jointly with the Royal Northern College of Music after her departure. Looking ahead to the next REF cycle, the unit has had early success in grant capture with a Networking Grant from the Global Challenges Research Fund (**Montero-Diaz**) and an AHRC ED&I Fellowship (**Blackburn**), both signalling key areas of income generation and growth in diversity representation in contemporary music communities.

Internal research funding is available to all research-active staff and PGRs to support a wide range of activities. Budgets are ringfenced for enabling research or for dissemination purposes and are available to support conferencing, travel and field work, PGR conferencing, travel and field work, conference/symposium hosting, seminars and events and impact acceleration, public engagement costs, and activities that will contribute to the Faculty's research strategic goals. Staff accessing internal funds have made use of this support for conference attendance, research networking activities and dissemination costs. **Uduman** and **Spasov** received £1,947 towards performance costs for a concert in collaboration with ensembles Rarescale and the SCAW DUO. Impact acceleration funding has supported **Spasov's** software update of his Attractors Library in 2020 as a strategy to widen access of this application for both Mac OS and PC platforms (see Impact Case Study). Translation costs to support **Montero-Diaz's** Impact Case Study evidence collection was also funded by this mechanism in 2020.

Facilities and Infrastructure:

The unit's practice-based research draws upon the Clockhouse facility which contains three multipurpose project studios, one of which is the Tim Souster recording studio. The building contains its own music library of scores and manuscripts, and staff have further dedicated research spaces around campus including the Lindsay Theatre Complex, containing further recording studio spaces, rehearsal rooms and a multi-purpose performance space. Investment into Music's studio spaces and facilities has enabled new research trajectories to flourish in areas of multi-channel composition, motion capture, gesture mapping and sensor-based systems for real-time music. Investment in the Claus Moser Research Centre was a strategy to provide a dedicated space for research using the Optitrack Motion Capture system, sensor technology and permanently installed octophonic system. This facility was supported via an internal faculty award in 2015 (£25K) for motion capture research. The unit has consistently received an annual budget of approximately £25K to support Music's environment and research equipment acquisitions, which includes equipment purchases and software updates. Staff utilising the budget for research needs include **Garro's** Esmono Sound Booth in 2016, enabling the focused capture, study and analysis of sound utilised by **Blackburn** in her research into soundfile brevity and micro-level detail sound recordings. Ongoing updates to the Tim Souster recording studio include the purchase of an Audient ASP8040 desk, additions of new outboard, microphones (including WA47, WA87, Electrovoice RE20, Beyer Dynamic M88s, Sennheiser e604s and an e602 adding to Keele's extensive collection of over 70 microphones), synthesizers and drum machines for practice-based research. Investment into a Dante portable recording system has opened further opportunities for professional sound recordings of staff composers' practice-based research in a variety of venues and spaces across campus for example, **Spasov's** recording of *Idiosyncrasies* for contrabass clarinet and live electronics within Keele Hall's Salvin Room. Investment into extending the unit's store of approximately 50 musical instruments from around the world has supported staff ethnomusicology research specifically in areas of Andean traditional music (sikus, antaras and panpipes) and Afro Latin American styles (cajitas, cajóns, quijada and cowbells) accessing the Music budget for this instrument acquisition.

4. Collaboration and contribution to the research base, economy and society

Research collaborators range from local charities, for example, MakeSomeNoise (a charity engaged with over 45,000 children, young people and families on strategic and participatory programmes primarily in Staffordshire and Stoke), and Wavemaker (a service bridging the digital

divide between those who can enjoy the benefits of technology and those who are at risk of being excluded), to international stakeholders and figureheads involved in policymaking (Solar, Peru and government ministers) and commercial application developers such as SABRE and Cycling 74. All researchers within the unit have prioritised external partnerships in their respective areas to provide consultancy and collaboration for the wider good of society and to further knowledge and understanding beyond the university. Examples of such partnerships include **Uduman's** research into digital education tools entitled 'Building an entertaining and education musical future for all young people' in collaboration with Three Stones Media. **Blackburn's** ongoing research into diversity and representation within sample pack distribution has recently established new industry partnerships with Loopmasters, Symphonic Distribution and Ableton as a means of targeting creator and producer beneficiaries in non-academic contexts.

Wider influence, contributions to the research base:

Staff are elected or appointed members of professional subject associations and learned societies in the following positions: **Blackburn** as council member for the Royal Musical Association, **Montero-Diaz** as member of the executive board for the British Forum for Ethnomusicology and member of the EDIMS (Equalities, Diversity and Inclusion in Music Studies) Network Steering Committee. **Blackburn** and **Fischman** both sit on the editorial board for *Organised Sound* Journal and **Fischman** has continued his role as Research Coordinator for the Composers' Desktop Project and is an editorial advisor for *Resonancias* journal. Staff have guest editing roles within the *Journal of Music Analysis* (**Reyland**), and Ethnomusicology Forum (**Montero-Diaz**). Advisory roles have been held by **Fischman** (REF external advisor at Sheffield University) and **Williams** as advisor for the German Academic Exchange Service (DAAD) facilitating mobility opportunities for early career researchers between UK and Germany.

Dissemination

Staff have been active in disseminating their research beyond Keele, taking up a variety of invited international positions to strengthen research connections and networking opportunities for future projects. Keynotes have been given by **Blackburn** (Musicological Society of Australia, Perth, 2018, National Association for Music in Higher Education, Glasgow, 2015 and the Women in Music Since 1900 Conference, Liverpool, 2015), **Montero-Diaz** (Lugar de la Memoria, La Tolerancia y la Inclusión Social, Lima Peru, 2017), Pontificia Universidad Católica del Perú, (2017) and the Pontificia Universidad Javeriana de Bogotá, Colombia, (2019); Royal Anthropological Institute, London (2019) and **Reyland** (Klarafestival, Brussels, 2016). **Fischman** was Principal Guest at the La Eschcha Errante festival, Bilbao (2016) for a premiere, presentation of research, round table discussion and recording of his work for a CD release by ZaupRecords. **Blackburn** was an invited SPARC Fellow at City University, London in 2019 providing a series of talks and concerts on her research. **Blackburn** has also continued her participation and affiliation with the AHRC Translating Cultures highlight notice providing two guest talks (Liverpool, 2016 and London, 2019) on intercultural creativity.

Prizes and profiles

Staff have been awarded major international prizes for composition research including **Blackburn's** *Landline* – winner of the Musicworks 2019 Electronic Music Contest (Toronto 2019), *Snap Happy* – winner of the Computer Space Award for Digital Music (Bulgaria, 2016), *Time will Tell* - First Prize Musica Nova Award (Czech Republic, 2014) and *Presque mon son* - Finalist in the Luc Ferrari Presque Rein Prize, (France, 2016). **Blackburn's** *Landline* was shortlisted for the ISCM World Music Days in 2019. **Spasov's** *Danzacalle* for orchestra was awarded 3rd prize at the Concours for New Music Compositions, from the Ministry of Culture of Republic of Macedonia (2015) and **Uduman** was Winner of the Britten Sinfonia OPUS 2016 award and was nominated for the BASCA British Composers Awards for *Glitschig* for bass clarinet and piano (2015). **Uduman** also received a 2018 PRSF Composers' Fund award for his research on technology and creative practice. These markers of esteem have further added to the international profile and reputation of the unit and have specifically provided the means for bringing new audiences closer to contemporary music.

Composer reputations and increased dissemination of practice-based research have contributed to success in securing major international and national commissions, supporting the creation of new music for a range of instrumentation from large orchestral works to soloist pieces, and those for electronics alone. These commissions include: **Spasov's** commission from the Festival Days of Macedonian Music for *Danzacalle* for orchestra premiered in the Macedonian Philharmonic Hall (2015). **Spasov** also received a Canada Council for the Arts Grant for his *Concerto for Percussion and Orchestra* (2016-17). **Uduman** was commissioned by the Britten Sinfonia's competition to write a piano trio, *Dann klingt es auf*, which was premiered in 2016, St Andrews Hall, Norwich. He also received an award and commission from the Performing Rights Society in 2018 supporting the composition and performance of pieces for clarinet and flute with electronics. A further commission from flautist James Wilson as part of his cycle of commissions for new works around the theme of the Seven Deadly Sins entitled *La cupidité de souffle* was completed in 2019. **Blackburn** received a commission from the Heritage Lottery Fund for *Two Sides of Delia* (2017), a synthesis work paying homage to Delia Derbyshire performed at the Blue Dot Festival (2017). A further commission for *Eye of the Stars* (2020) from the Reina Sofía National Museum of Contemporary Art, Madrid was received to create an open access electronic work as part of the exhibition: AUDIOSPHERE – Social Experimental Audio, pre- and post-internet' (2020). The composers in the unit have demonstrated a strong international presence in contemporary music festivals within the REF cycle; Garro curated a concert 'From Video Concrete to Audio Visual Poetry' at the New York Electroacoustic Music Festival (2017) and Spasov continued his co-ordinator role for the annual International Symposium on Music and Sonic Arts: Practices and Theories, Institut für Musikwissenschaft und Musikinformatik in Karlsruhe, Germany. Blackburn has had 9 solo composer concerts, three of which were international invitations to prestigious music festivals: L'Espace du Son festival Brussels (2015 and 2020) and the Australian Computer Music Conference (2018).

Conference hosting The unit has hosted a variety of research symposia, conferences and festivals within the REF cycle, hosting international speakers to share research with the wider research environment at Keele. As part of his AHRC Leadership Fellowship, **Reyland** coordinated the Music Analysis Conference (2015), in conjunction with the Society for Music Analysis. The keynote speaker was Professor James Hepokoski, a leading international figure in the field of sonata form theory. Hepokoski provided training for research students in the field of sonata form theory and practice, funded by the Society for Music Analysis. In 2017, Keele hosted the Medical Humanities conference including contributions from Music staff. **Reyland** gave a paper on music and mental health and **Fischman** performed *Ruraq Maki* for digital glove in the New Vic Theatre as part of this Humanities-wide conference. **Fischman's** interactive glove installation focused on enhancing wellbeing through technologically enabled participation aimed at non-musically trained participants. In 2018 **Montero-Diaz** convened and hosted the BFE one-day international conference in Ethnomusicology which focused upon the theme: "Beyond Memory and Reconciliation: Music, Conflict Transformation and Social Manipulation in Post-Conflict Contexts" gathering delegates from New Zealand, Nepal, Japan, USA, Ireland, India, France, Portugal and Colombia at Keele. Keele hosted the Stonewall BAME LGBT Voices Documentary Screening day (2019) also convened by **Montero-Diaz**.

Peer-review positions

Music staff hold a variety of peer-review positions, including book and journal reviewers, composition jury membership and research grant assessors. **Spasov** has provided peer-reviewing for The Israel Science Foundation Individual Research Grants (2018) and *Computer Music Journal* (2015-present), **Williams** has reviewed for OUP and Routledge, and is ongoing reviewer for journals *Twentieth-Century Music* and *Music Analysis*. **Williams** and **Kelly** both served as members of the AHRC Peer Review College in this REF cycle and **Williams** was on the programme committee for the 9th European Music Analysis Conference, Strasbourg France (2017). **Fischman** was jury member at *Concours International de Composition Electroacoustique de Monaco* (2016). **Blackburn** has provided peer-reviewing for the *International Journal of Performance Arts and Digital Media*, was jury member for the MA/IN - MAtera INtermedia festival (Italy 2018) and was appointed as a peer-reviewer for UKRI's Future Leaders Fellowships in 2020.

Institutions where members of the unit examined PhD and MRes theses during the period include: **Blackburn**: De Montfort University, **Fischman**: De Montfort University, University of Sheffield and Maynooth University, **Montero-Diaz**: University of Bergen, Norway and University of Derby, **Reyland**: Oxford Brooks University, **Spasov**: University of Manchester and University of Limerick, **Uduman**: University of Liverpool, **Williams**: University of Oxford, University of London, University of Durham and University of York.