

## reaching critical mass THROUGH COLLABORATION



Graduate outcomes data typically shows that a third of physics graduates pursue technical employment. The White Rose Industrial Physics Academy (WRIPA), a regional initiative of five university physics departments, aims to improve this figure through curriculum development, careers support and employer engagement. **Dr Andrew Hirst**, Operational Manager of WRIPA, based at the University of York, outlines the benefits of a collaborative approach to physics graduate employability.

“THE APPEAL TO EMPLOYERS IS THE ABILITY TO CONNECT WITH A REGIONAL TALENT POOL OF PHYSICISTS AT A SINGLE EVENT KEEN TO USE IT TO USURP US”

**D**espite [published evidence of the value of physics to the UK economy](#), physics-based technical industries find it difficult to recruit [sufficient numbers of suitably qualified graduates](#). Unlike other disciplines, such as chemistry or engineering, there is no obvious ‘physics industry’, so many physics undergraduates find it difficult to identify technical career paths. In parallel, students often lack essential professional skills for entering these technical careers.

### CORE NETWORK

In 2014, the universities of Sheffield and York were awarded HEFCE Catalyst Funding to set up the White Rose Industrial Physics Academy (WRIPA), which has since grown into a consortium of five university physics departments with Hull, Leeds and Nottingham joining in 2016. The WRIPA is in year five of a 10-year project with the primary objective being to increase the number of physics graduates that pursue technical careers. This objective is realised by incorporating real-life learning within the curriculum that emphasises both factual knowledge and the application of knowledge. In addition, WRIPA increases the profile of technical industries through employer events and offer careers support.

The WRIPA core network now constitutes a total of 35-40 academic and professional staff. Working as a networked team across several universities enables the more effective delivery of large and complex events, the organisation of a wider range of activities, an increased profile and ‘reach’ with external stakeholders and the sharing of best practice (e.g. sharing laboratory teaching practice and year in industry programme development). This permits us to reach ‘critical mass’ and to draw on a wider range of contacts and expertise that is difficult for an individual department to offer.

### EMPLOYER ENGAGEMENT

We have initiated a regional discipline-specific recruitment fair. The Physics Industry Recruitment and Placement fair has grown, over four years, from an event that attracted 13 employers and 150 physics students to one with 45 employers and more than 700 physics students attending. The 2018 fair is open to physics students from 19 regional university physics departments from the Midlands and the North. The appeal to employers is the ability to connect with a regional talent pool of physicists at a single event. In parallel, students can interact with employers from a diverse range of technical sectors. The profile of the fair is magnified via individual departmental employer

contacts. In addition, key elements of the fair, including Careers Hubs, are co-delivered by professional staff from individual WRIPA universities.

Increasingly, we are placing greater emphasis on other modes of employer engagement that are driven by business need to develop more inclusive and sustained approaches to university engagement. A greater diversity of activities are delivered through the sharing of opportunities, employer contacts and early career alumni involvement. These activities include site visits, employer webinars, e-mentoring and the development of digital resources that showcase physics related job roles and careers. This approach places an increased emphasis on immersive learning experiences and proximal learning and compliments ‘traditional’ career development activities.

### CURRICULUM DEVELOPMENT

WRIPA has influenced and supported university physics departments to place a greater emphasis on work-based learning. All university partners now offer year in industry programmes and undergraduate final year industrial projects. York has taken the additional step to assign direct entry to its degree+year in industry programmes. Campus-based final year projects are centred around real industrial problems. The

“BY PARTNERING WITH CENTRAL UNIVERSITY CAREERS SERVICES, WE HAVE INTRODUCED A NUMBER OF DEPARTMENTAL INITIATIVES”

students are faced with a technical physics open-ended problem from a real ‘client’ or employer and work individually or in teams to solve the problem and prepare both a presentation and report for the client. These activities continue to evolve but, in all cases, the learning occurs in real professional contexts and enables students to interact with employers and develop their professional networks.

### CAREERS SUPPORT

Increasingly, students look for ‘just in time’ careers support that is delivered within a physics context by ‘authentic voices’ (e.g. early careers physics alumni, returning year in industry students). This poses a significant challenge in terms of resource and scalability. By partnering with central university careers services, WRIPA has introduced a number of departmental initiatives to begin to address these challenges. Initiatives include physics-

based employer and alumni-led skills training sessions, a week-by-week schedule of year group-specific sessions and reflective careers questionnaires completed at the start of the academic year. In the latter case, this enables student responses to be aggregated based on career readiness, career aspirations and ‘bottlenecks’ to acting on choices. Across WRIPA, approximately 40% of physics undergraduates engage with these initiatives but more needs to be done to engage those students that can be categorised as ‘need help, don’t seek help’.

The potential for academic departments to benefit from a collaborative approach to physics graduate employability is huge, especially in light of the government’s Industrial Strategy, TEF and students viewing a university degree as an investment. Our longer term ambition is twofold: to fully integrate employability within programme design and to co-create curriculum content with employers.



andrew.hirst@york.ac.uk  
/in/andrew-hirst-wripa/  
@WRIPAinfo  
youtube.com/c/WRIPA