Statement to the Joint Oireachtas Committee on Enterprise, Trade and Employment
Topic: The Skills and Apprenticeship Landscape in Ireland

On behalf of the Institute of Physics, I want to thank the Chair and Members for the opportunity to address the Committee. My name is Fiona Longmuir, and I am the Learning & Skills Manager at the Institute of Physics in Ireland, and together with my colleague Dr. Michael Kyle, our Policy Manager, we are delighted to be here today to discuss the skills and apprenticeship landscape in Ireland.

The timing could not be better to have this conversation, as we are currently in the European Year of Skills, one purpose of which is to help small and medium enterprises address crucial skills shortages. Physics-related skills are applicable in a wide range of industries and research communities, meaning they open up opportunities for learning and working in industries from engineering to medicine and accounting to zoology. Today, physics-related skills underpin a huge number of businesses and industries in Ireland, with the physics sector in 2021 generating €81bn in turnover. Physics-based industries employ 190,000 people full-time, and these employees boast both high average earnings at €59,000 and extremely high labour productivity at €149,000 per person. The sector is expanding all the time, with 45% growth in jobs between 2010 and 2020. Given the role of physics in emerging industries like semiconductors, quantum technologies, artificial intelligence and advanced manufacturing, we expect demand for these skills to continue growing.

Unfortunately, this demand is currently going unmet. In June 2021, almost 9,000 physics related jobs in the UK and Ireland were advertised for significantly longer than average. In research commissioned by the Institute of Physics, 61% of physics-related businesses reported having delayed research, development and innovation between 2016 and 2021, due to a lack of skilled workers. This is a big, missed opportunity to accelerate home grown innovation and could result in technologies being developed abroad, further deepening the loss of skills.

Existing shortfalls coupled with growing demand for physics skills mean that the skills gap is likely to widen in the coming years. Improving the appeal of physics to all people, including those from underrepresented groups offers the most effective way to increase the overall numbers of people in the physics community. Stereotypes still persist that stop young people believing they can study physics or dreaming of the astonishing opportunities physics careers can offer. Physics offers a wealth of benefits to individuals and ultimately to society. It develops ways of reasoning that are rewarding and broaden horizons and open doors. It provides powerful and beautiful explanations about the workings of the world, which deepen our understanding and can spur innovation. We want to build a sustainable, thriving skills-based ecosystem that will support the livelihoods, industries and technologies made possible by the next industrial revolution, which will, in turn, sustain the health, wealth and wellbeing of future generations.

Urgent and sustained action is required to give all young people access to a high-quality physics education and equip them with ways of thinking that will help them navigate the choices and challenges they face in society. At school, this means that all young people should have access to a specialist physics teacher, who is empowered by ongoing professional development to confidently deliver the curriculum and advise students on the wide range of opportunities open to them once they have completed mandatory education. A specialist training course for upskilling teachers to become Physics specialists, which will help improve the supply issue, is ongoing in Dublin City University and is in it's third year of operation.

Ireland ranks significantly above the OECD average in its share of young adults with a tertiary degree. However, access to well-paid, productive career paths should not be limited to those pursuing a

degree. In fact, approximately half of physics-related jobs do not require a degree, making further education and training a valuable and underutilised tool in the closing of the skills gap.

There have been significant positive changes in the apprenticeship sector in recent times, with the establishment of the National Apprenticeship Office and the launching of Generation Apprenticeship. The five-year apprenticeship action plan is wide-ranging and ambitious, and the Institute of Physics would welcome the opportunity to support in building an apprenticeship landscape that is responsive to the changing needs of employers, attractive to learners from all backgrounds and most of all, that is able to deliver the skilled workforce that will power the industries shaping our future.

The IOP's recent Solving Skills report identified a number of areas of opportunity for governments to address the systemic issues holding back the growth of STEM skills, and particularly STEM apprenticeships.

- Ensuring a broad and genuinely representative cross-section of industry is involved in shaping apprenticeships. Apprenticeships are uniquely positioned to tackle the skills gap, if we are able to create opportunity in the sectors poised for future growth.
- Ensuring young people in pre-16 education are meaningfully exposed to local employers and technical education providers, so that apprenticeships are better understood as a viable route into jobs. At the moment, 16 counties have three or fewer apprenticeships open for application. 4 counties have none at all.
- Tackling the shortage of skilled apprenticeship educators to ensure quality provision and addressing the severe shortage of physics teachers in schools.
- Taking decisive action to break down stereotypes about physics, science and apprenticeships, including making whole school equity plans mandatory in all schools and nurseries. Of the 45 apprenticeships offered in construction, electrical, engineering, finance, ICT and motor, only 6 had more than 20% female participation in 2022. Apprenticeships must be made attractive and welcoming to learners from all backgrounds, with particular focus on underrepresented groups such as women, disabled learners, learners from minority ethnic backgrounds and learners from disadvantaged socioeconomic backgrounds.
- Improving data collection on the progression and destination of apprentices, to ensure systems are genuinely inclusive and open to all, and to inform policy and action.

We will continue to campaign to break down the barriers and confront the negative stereotypes that prevent young people, including those from underrepresented groups from doing physics after the age of 16 and from accessing all the opportunities this can offer. By doing so we will ensure that physics is seen as a rewarding educational choice that also opens the door to a wide range of careers.

We would like to thank you for your attention today, and welcome any and all opportunity to work with you in delivering a thriving, robust skills ecosystem.