

# Ray Davies, Photonics Academy of Wales @ Bangor : a tribute

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**Abstract:** Ray Davies, Director of the Photonics Academy of Wales @ Bangor died in January 2021. He was 85 and still actively engaged in photonic education. This presentation aims to summarise his pioneering educational activities. © 2021 The Author(s)

**Summary** This summary offers a flavour of the many activities undertaken by Ray Davies in the furtherance of photonics education. The associated presentation will amplify the themes introduced here.

When asked to define the age range of his target audience for disseminating understanding of optics and photonics Ray indicated '8 to 80'. He practiced what he preached. His engagement with the younger end of that age spectrum is encapsulated in sessions held at primary schools. With the school bell having rung for the end of the day and groups of parents outside anxiously waiting for their offspring to appear, the pupils were oblivious to both and were simply determined to complete the task at hand. That task was the design of a 'Magical Home' wherein photovoltaics was to be deployed to maximum effect. The key aspect was that the designs were the work of the children and this typified Ray's approach when working with all age groups. He would initially introduce a concept or a property of light and then ask his audience to use that aspect of light to devise a novel device or system of societal benefit.

The latter qualification was central to Ray's hands-on practical approach to learning and teaching. One of his main interests was the use of light to assist partially sighted and blind people. A particular case of this was the challenge he set an assembly of European post-graduate researchers at the European Society of Precision Engineers (EUSPEN) summer school at Downing College, Cambridge University in 2011. The group was asked to find an optical means for helping sight-challenge people to negotiate a staircase. As he was preparing his kit to travel to Cambridge, Ray indicated to me that the previous evening he had thought of a dozen ways to meet his own challenge.





Perhaps the most fruitful context for the display of ingenuity by students was the Photonics Academy Summer School (PASS) which was initially held in Technium Optic and then for many years at the Bangor University Photonics Academy of Wales at Bangor (PAWB). Here about 20 young people typically 16-18 years of age would spend 4 or 5 weeks over the summer developing some stunning exemplars of the applications of optics: means for detecting debris on an airport runway; a laser harp; means for identifying how well one washed one's hands – an application of some contemporary relevance. For the summer school it was not sufficient to have a good idea, the students were expected to construct and test their prototype. Typically these were constructed using very colourful materials which made them highly memorable. Later in the year the students were invited to make a presentation about their achievement to a packed audience of parents, pupils, academics and industrialists. Overall this was an excellent grounding for the participating students. The summer schools were always over-subscribed but never advertised. Word of mouth resulted in students appearing from diverse places and backgrounds.

