

## Teachers experiment with explosive lessons

Weeklong event offers exemplary professional development for teachers



*Laurie Ryan blowing flames at the annual Chemistry Demonstration Workshop 2017, engaging science teachers*

The annual workshop for educators, hosted by Synthesis and Solid State Pharmaceutical Centre (SSPC) and the Dept. of Chemical Sciences, was held in the University of Limerick (UL) recently. The workshop is designed to encourage science teachers to become more confident with chemical demonstrations and brings effective learning strategies to the classroom. Sponsored by SSPC, the Royal Society of Chemistry, the Institute of Physics, Faculty of Science and Engineering, Dept. of Chemical Sciences, and Bernal Institute (UL), Professional Development Service for Teachers (PDST) and BioPharmaceutical Ireland, the workshop offers opportunity for teachers to incorporate experiments that will capture students' imagination.

The workshop includes explosions and some of the coolest reactions in chemistry involving a chemical demonstration show, simple physics demonstrations, Spectroscopy in a Suitcase by Royal Society of Chemistry, and will covers safety aspects and the use of ICT in demonstration. The course incorporates inquiry and problem-based learning methodologies, to enable teachers to utilise demonstrations to stimulate curiosity and problem-solving ability on the part of the

students. Teachers work in pairs and are required to research, devise, test and present their own 10-20 minute chemical magic show at the end of the week. This approach offers many advantages, including the future active engagement of students in chemistry projects and teachers can see the benefits of the workshop as chemistry plays an important role both in our lives today and in our future.

Supporting teachers' development is vital for the enhancement of the Irish education system, to help educators capitalise on the importance of science in everyday life, creating an active learning environment by integrating demonstrations in the classroom helps expand engagement in learning and develop a repertoire of demonstrations linked to the physical sciences.

SSPC's Education and Public Engagement Officer, Dr Sarah Hayes said: "The workshop showcases the relationship between the practicality of the work and the enthusiasm for teaching. The Centre has developed the course to give the hands-on experience with various experiments and enhance confidence in teaching methods. Every year the feedback we receive shows it is very useful, engaging and offers teachers a real opportunity to present in the classroom with self-assurance."

SSPC's General Manager, Jon O'Halloran, added: "Teachers need the opportunity to step back from teaching and to develop new skills and new ways of presenting science. These workshops give them the time to build their confidence and expertise, to share ideas with fellow teachers, and we find that they return to their schools invigorated and more enthused about teaching chemistry."

The SSPC Education and Public Engagement (EPE) programme funded by Science Foundation Ireland plays a key role in communicating the importance and value of science to the wider society in Ireland. The SSPC's EPE programmes incorporate customised, context-based activities for each stage of the Irish primary and post-primary educational systems. Additional programmes designed for third/fourth level students, industry, and the general public also play a role in the EPE strategy to promote engagement with SSPC's research, as well as to create a dialogue among all participants about Science, Technology, Engineering, Mathematics and Medicine (STEMM), particularly in the area of chemistry and pharmaceutical manufacturing.

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**Point of contact for media query –**

Louise O'Neill, SSPC Communications Officer.

Phone +353 (0)61 234675. Email: [louise.oneill@sspc.ie](mailto:louise.oneill@sspc.ie)

Website: [www.sspc.ie](http://www.sspc.ie)

## About the SSPC

The Synthesis and Solid State Pharmaceutical Centre (SSPC), a Global Hub of Pharmaceutical Process Innovation and Advanced Manufacturing, funded by Science Foundation Ireland and industry, is a unique collaboration between 24 industry partners, 9 research performing organisations and 12 international academic collaborators.

The SSPC transcends company and academic boundaries and is the largest research collaboration in Ireland, and one of the largest globally, within the pharmaceutical area. The role of the SSPC is to link experienced scientists and engineers in academia and the pharmaceutical industry, to address critical research challenges.

The SSPC leads the way for next generation drug manufacture and spans the entire pharmaceutical production chain from synthesis of the molecule, to the isolation of the material, and the formulation of the medicine. The aim of the SSPC is to deliver industry relevant solutions, which result in job growth and retention within the pharmaceutical industry in Ireland.