

Physics with Industry: From charged mesh nebulisers to purifying water

Michiel van den Hout, Jeroen van Houwelingen, Melvin Kasanrokijat, Maria Sovago, Xavier Weenink

Description and aims

In this year's edition of the Physics with Industry workshop, 35 researchers worked on five real-world industrial problems during five consecutive days. Dunea, Lievers Holland, Philips, SensorTags Solutions and Shell participated with an industrial case.

The industrial cases were selected by a scientific committee after an open call during which companies could submit a case. All of the industrial case owners declared that the proposed solution of the workshop week really helped them to develop their case further. The submitted cases ranged from testing theoretical or hypothetical opportunities to improving existing technologies. Surprisingly, the most practical case, dealing with the compacting of concrete, showed the most out-of-the-box solution, but some real experiments had to be done to get there. In another case, where the issues in the generation of ultrapure water droplets using a mesh nebuliser were investigated, the solution emerged from theoretical analysis. A third case used modelling as a tool to obtain a solution.

Format

All of the cases were coached by an academic and an industrial supervisor. This guaranteed the scientific quality and the applicability of the solution. The participants enjoyed the workshop due to the scientific challenge but also through experiencing how industrial problems are solved and how companies work. A few comments from the participants:

'I had the opportunity to experience for a week what it feels like to work for a company. It made me realise that my knowledge can actually be applied to real problems, which is very reassuring.'

'I have seen what the benefits and dynamics of teamwork are and I learned a lot about practical/industrial problems.'

'I learned a lot about industry life. As a PhD student you are used to academic life and industry can be scary. But this workshop and our case showed that industry can go hand in hand with science.'

The workshop was held from 21 to 25 November 2016 at the Lorentz Center in Leiden. The project is a joint collaboration between FOM, Technology Foundation STW and the Lorentz Center. The findings and suggested solutions will be published online by the end of January 2017.



Presentation and award ceremony on Friday (Credit: Auke Planjer, Lorentz Center)



Participants Physics with Industry 2016 (Credit: Eline Pollaert, Lorentz Center)