Six reporters have three hours to find out where they are, and what is going on. Using your reliable information and a hand cranked duplicator they produce a paper with the REAL news: The Daily Issue.

THE DAILY ISSUE

Edition **62** - 22/1/2014

FOM PHYSICS

CRISTIANE DE MORAIS SMITH: THEORY VS EXPERIMENT

▼

part 2 of a double interview

"I propose a menage a trois" says Cristiane de Morais Smith, after reading yesterdays interview with Ursula Keller, in edition 60 of this paper.

To Cristiane, theory, analytics and numerics should go together. We need models, but we also need exact answers. An exact answer does not give you understanding the way models do. Experiment and theory are ideally a feedback loop where the one inspires the other. As a theoretician, I try to explain experimental results, and to make predictions. The experimentalists check the predictions. Together we make progress. The best is when you talk to the experimentalists and find out there are more results that they haven't given to you yet, that confirm your theory.

"Like Keller, you prefer simple models, but in the world outside there are all sorts of complex systems that people try to deal with. Will simple models help to understand those?"

I believe truth is in simplicity. Simplicity of a model is a sign that you are in the right direction. The universe is complex, but its simplicity is hidden. The most powerful thing is to capture the essence. A nice example is the Ginzburg-Landau theory of phase trasitions. It is a phenomenological theory that is simple but describes a lot of phenomena.

Theory and experiment are a chicken-and-egg story, we can't have one without the other, and I wouldn't want to.

WILD RINO

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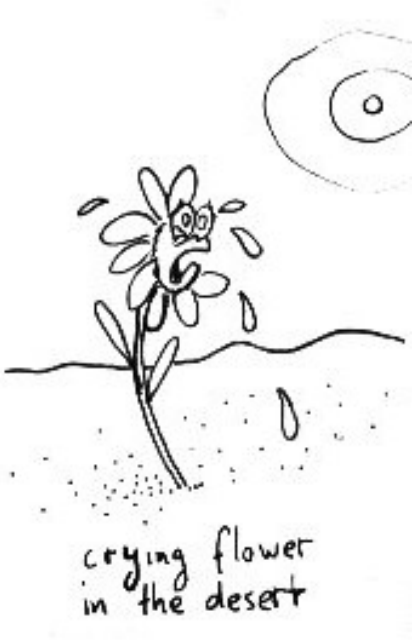
Kevin (23), Max (19) and Sander (19) are each one-half physics student in Leiden University and one-half showbiz enterpreneurs. They are all proud members of RiNO, a student lead organization that has taken physics demonstrations to something of a stage art, in keeping with a long standing tradition of live science demonstrations. Old students teach new students the tricks of the trade and the organization has been keeping a steady stream of performances for 20 years already.

Over the years they have created many shows although their most popular are those dealing with Electricity and Liquid Nitrogen. They pour liquid Nitrogen onto anything and splash it recklessly around themselves and the audience. Did you know that a frozen bell has a higher pitch!? Illustrating concepts such as reduced resistance, material acoustics, volume expansion, propulsion, condensation and even ice cream making, a demo that sadly didn't make it to this year's FOM conference. These guys are Liquid Nitrogen alrounders.

RiNO is a hyperactive organization with many volunteers that takes on fifteen shows a month. By their own numbers they WOW an average of twelve thousand people a year with their shows.

Next time you can't explain your partner what you do every day at your research post give RiNO a call.



LUCKY BALL

In case you wonder: who is that guy with that big, big smile walking around? The answer is: it's Wout. This 28-year old theoretical physicist really enjoys being back at FOM Veldhoven, since he met his girlfriend from Venezuela at the conference last year. 'I was busy making a 'bucky ball' from origami in the Benelux-hall. Then she appeared and gave me some very sweet compliments. About the bucky ball, of course.'

Wout is sure that his relationship is the most important thing that remains from the last edition of FOM. The secret of their relation? 'I'm a theoretician and she's an applied physicist. If you are from the same discipline, you stay in your own world.' Then he laughs: 'Everyone knows that theoreticians are the best dancers of the world. That is, in theory. But applied physicist really can dance. So, I'm very lucky'.

TEARS IN THE SAND?

"I would like to understand the things that surround us every day. In The Netherlands, it rains a lot. But what happens exactly when drops of fluid fall? We don't understand much of it yet." Rianne (27) studies the impact of falling droplets on sand to unravel that mystery at the University of Twente. "I use lasers to define the form and depth of the crater." It is fundamental research, but more knowledge on falling droplets might help improve irrigation techniques. This could make the desert a greener place. But mind you: in the far future, when more research is done.

SEARCHING FOR THE PERFECT WHITE

Close to the lunch area the people of AMOLF are making white light.

Everybody knows that you can create white light mixing red, green and blue light. 'Generating white light in an efficient way is very important,' according to AMOLF researcher Grzegorz (29). You could of course use red, blue and green LED's in order to generate the desirable white. LEDs are of course a sustainable and more efficient substitution for the good-old lightbulb. But there is one problem: where red and blue LEDs are relatively cheap, green LEDs are very expensive. 'But we have a solution. We take a blue LED and cover it with a material which absorbs the blue light and emits yellow light.' Because the material, which consists of nanoparticles, also transmits part of the blue light, your eye will perveive the light as being white. 'The nanoparticles can also make the bulb even more efficient, by manipulating the light in a specific direction.' In a mysterious box experiments on this light manipulation are performed. By arranging nanoparticles the researchers can create exactly the light emmission they want. 'In this way we could create a light emmision which was sixty times stronger than we had produced before.'

COLOFON

The Daily Issue is written and printed on the spot by a varying board of editors. This issue was made by: Danibal, Diana Wildschut, Dick Bos, Harmen Zijp, Lemke Kraan, Luis Fernandez, Patrick Nederkoorn and Peter Uithoven.

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