*The **CREA**tion of the Department of Physical Chemistry of Biological Sys**TE**ms [CREATE]*

666295 — CREATE — H2020-WIDESPREAD-2014-2015/H2020-WIDESPREAD-2014-2

Visit of Vincent Laban - report

[WP5]

Level of dissemination: PUBLIC

Warsaw, March 2017

This project has received funding from the *European Union's Horizon 2020 research and innovation programme* under grant agreement No 666295

TABLE OF CONTENTS

CREATE lectures ”Innovation source”

The second open lecture under a series of “*Innovation source*” was held on the 28th March, 2017 at the Institute of Physical Chemistry PAS (IPC). The purpose of the above series of lectures is to update scientists’ knowledge of current technological trends and innovation in chemistry-related sectors, as well as establishment of relations with business.

Vincent Laban was invited to the Institute by the CREATE Project Coordinator, professor Robert Holyst. **Vincent Laban** is a **CFO of *VSParticle* - a Dutch startup company from Delft University of Technology specialised in the development of nanoparticle generators**. The main goal of the visit was to deliver a lecture “***VSParticle: spin-off company of the Technical University Delft – Production of nanoparticle***”. The whole society of IPC, with IPC researchers and doctoral students, was invited.

Mr. Laban started with description of his career path – from a researcher, through an employer of a corporation to an entrepreneur and at the same – an employer. He also presented the history behind the establishment of his spin-off company, indicating some of the biggest challenges which founders (scientists and young entrepreneurs at the same time) need to face at the first stage of running own business. In particular, it refers to securing funds. Mr. Laban also defined the timeframes and resources needed to transfer the ideas from one laboratory to the other, and from

the laboratory to business unit (more than 20 years). In his case – a lacking resource obstructing his research (lack or hampered access to particles) was an inspiration to elaborate an apparatus for – firstly – his own purpose, and then – external recipients.

Next, Mr. Laban explained a method of particle production used by his company, which aroused interest of some of the research groups at IPC. He gave also a clear indication of areas where his company is supposed to developed in the future, explicitly:

- Catalysis (industrial production of chemicals),
- Printed electronics,
- Life sciences (nanomedicine and sensors).

At the end of the presentation, several PhD students for some clarification, mainly referring to application of the proposed solution into their particular research environment.

The seminar gave an opportunity for active discussion about possible applications of the new material solutions into the research conducted at IPC.

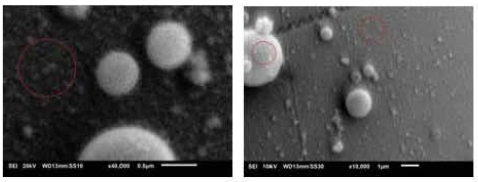
ANNEX 1.

Presentation: Introduction to VSParticle

This project has received funding from the *European Union's Horizon 2020 research and innovation programme* under grant agreement No 666295

Nanoparticles

What are nanoparticles?



Founders

Who are we?

Aalke van Vugt
Chemical Engineering
CEO

Tobias Pfeiffer PhD.
Chemical Engineering
CTO

+ Andreas Schmidt-ott
Prof. TU Delft

Tobias Coppejans
Chemical Engineering
COO

Vincent Laban
Industrial Design
CFO

Two Problems

What do we need to overcome?

1. **Scientist** spend majority of their time on the synthesis of nanoparticles
2. **Industry** struggles to make the step from research to production

VSParticle Solution

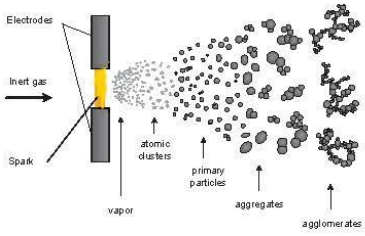
Production of nanoparticles

Automated production

- ✓ On location (24/7)
- ✓ No chemicals
- ✓ Tremendous control on particle size and purity

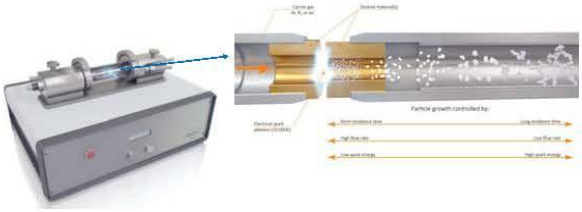
Our method

Detail of particle production



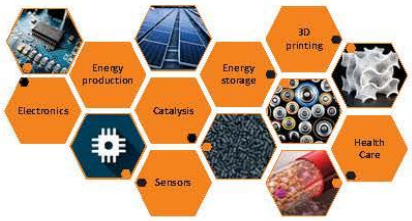
Our method

Detail of particle production



Nanoparticle Application

Markets for nanoparticle technology

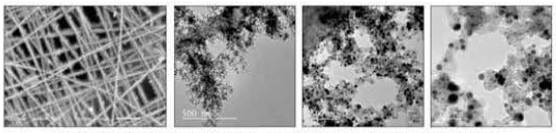


Complete solution

Nanoparticles at the touch of a button

VSParticle results in catalysis

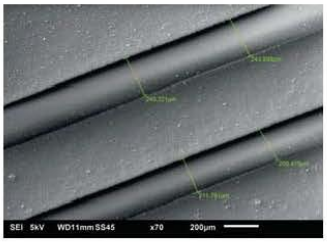
Printing both support and active particles for catalysts



Aluminium oxide fractal nanostructures with Au nanoparticles (SEM & TEM)

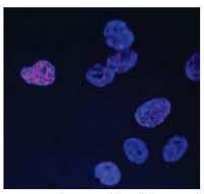
VSParticle results in electronics

Printed conductive lines (pure copper)

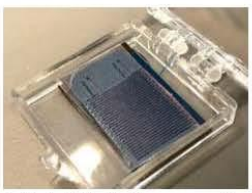


VSParticle results in Life Sciences

Medical treatment and sensory (microfluidics)



Fluorescence microscopy of Cervical cancer cell cores, showing double string DNA fractures (FeO NP)



Coated microfluidics chip with copper nanoparticles to simulate Pt NP and Pd NP deposition for sensor


Thank you!
Questions?
Contact person:
Vincent Laban
v.laban@vsparticle.com
+31(0)6 19 30 1486
VSPARTICLE