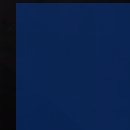
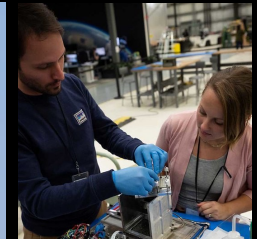
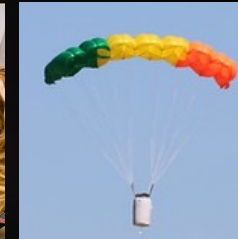
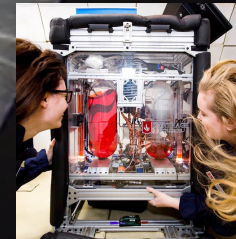


National Aeronautics and  
Space Administration



NASA Flight Opportunities

## Designing a Flight Test-Ready Payload

Veerle Reumers, Ph.D., R&D Manager, Imec USA

Earl Adams, Flight Campaign Manager, NASA's Flight Opportunities program

Michelle Peters, Director of Research & Education, Zero Gravity Corporation

## Community of Practice Webinar Series – February 2, 2022

Session will start at 10 a.m. PT – Please mute your microphone and turn off your camera

[www.nasa.gov](http://www.nasa.gov)



## Welcome to the Community of Practice Webinar Series!

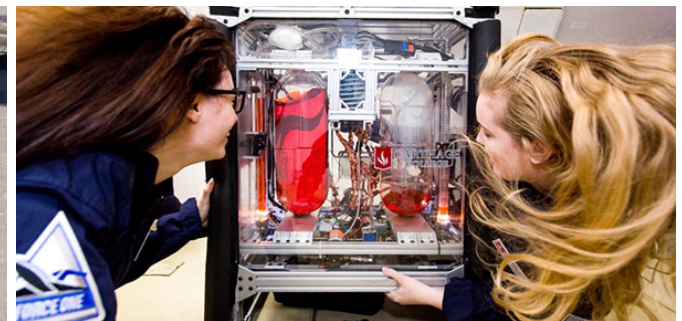
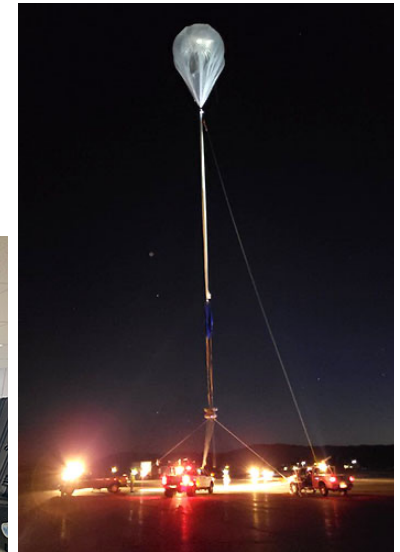
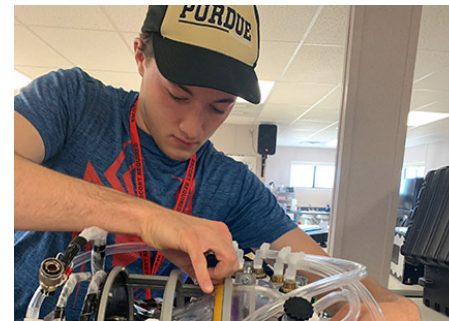
### *First, a bit of housekeeping...*

- Please mute your microphone and turn off your camera
- Today's session will be recorded
- Recordings for this and all future session will be posted on the Flight Opportunities website
- Please engage!
  - Use the chat throughout the session to ask questions



## Flight Opportunities Mission

The Flight Opportunities program facilitates **rapid demonstration** of promising technologies for space exploration, discovery, and the expansion of space commerce through **suborbital testing with industry flight providers**.





## Join us for future Community of Practice webinars!

**Watch our website and  
newsletter for next month's  
topic**

**[nasa.gov/directorates/spacetech/flightopportunities/newsletter](https://www.nasa.gov/directorates/spacetech/flightopportunities/newsletter)**

### Future webinars

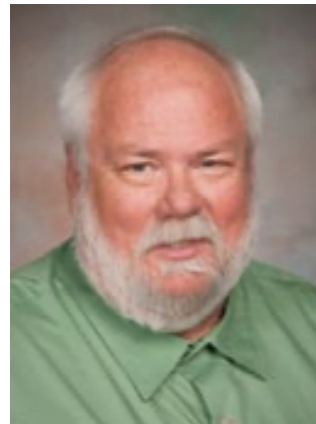
- Webinars are held 1<sup>st</sup> Wednesday of each month at 10 a.m. PT
- Topics will be announced in the Flight Opportunities newsletter and website
- Session recordings will be posted on the Flight Opportunities website
- Let us know session topics you would like to see covered



## Today's Speakers



**Veerle Reumers, Ph.D.**  
R&D Manager  
Imec USA

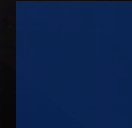
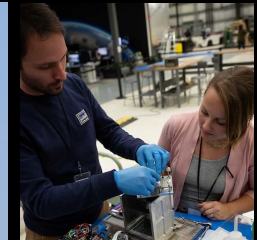
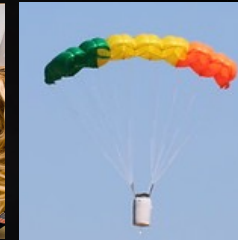
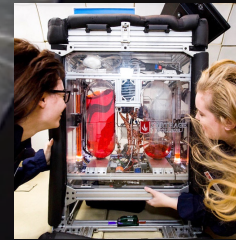
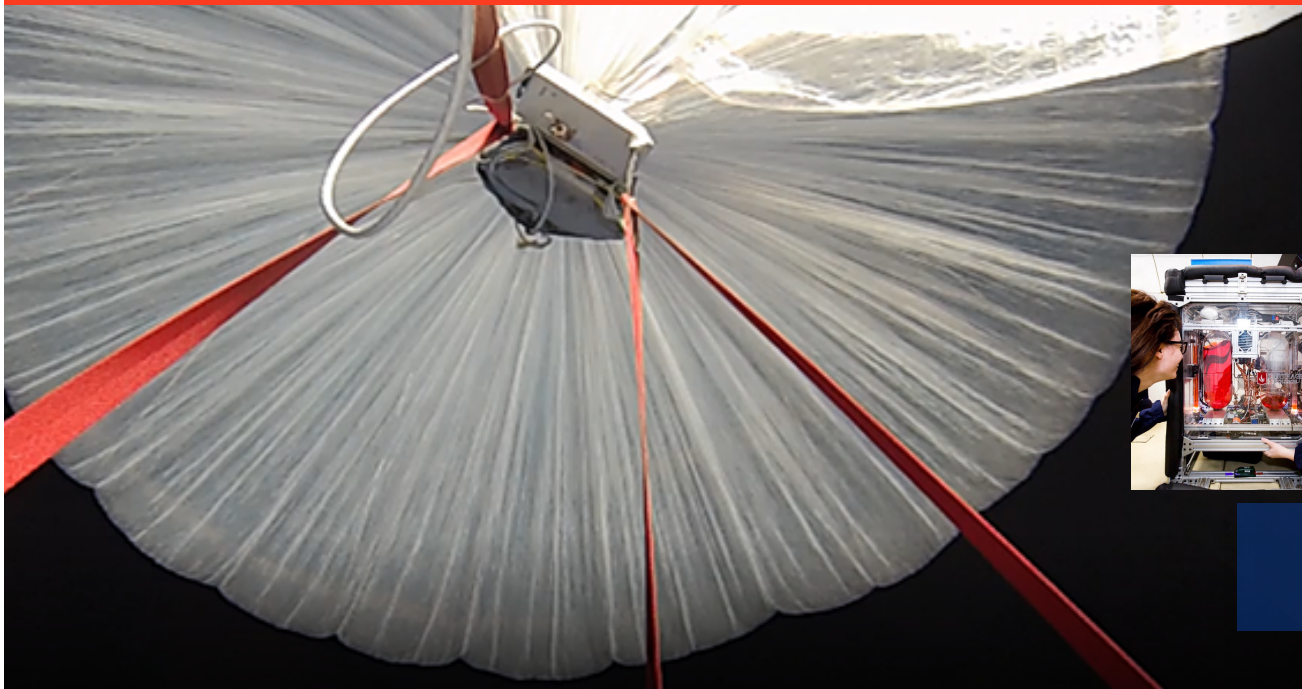


**Earl Adams**  
Flight Campaign Manager  
Flight Opportunities



**Michelle Peters**  
Director of Research & Education  
Zero Gravity Corporation (ZERO-G)

National Aeronautics and  
Space Administration



NASA Flight Opportunities

## Community of Practice

Dr. Veerle Reumers | February 2022

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**mmeC**

NASA TECH FLIGHT WEBINAR

SILICON-BASED MICROFLUIDIC BLOOD TEST FOR SPACEFLIGHT

VEERLE REUMERS PHD, R&D MANAGER

# IMEC USA INTRODUCTION

Opened in 2016

Not for profit research institute in nanotechnology

Headquarters in Belgium, Europe (since 1984)

500 acre technology district part  
of Osceola County's **NeoCity** initiative  
located in Kissimmee, Florida

Partnered with **on-site cleanroom**  
for fabrication of our devices

Currently ~20 employees, and growing

Pursuing R&D in cryoelectronics for next gen  
computing, and space health



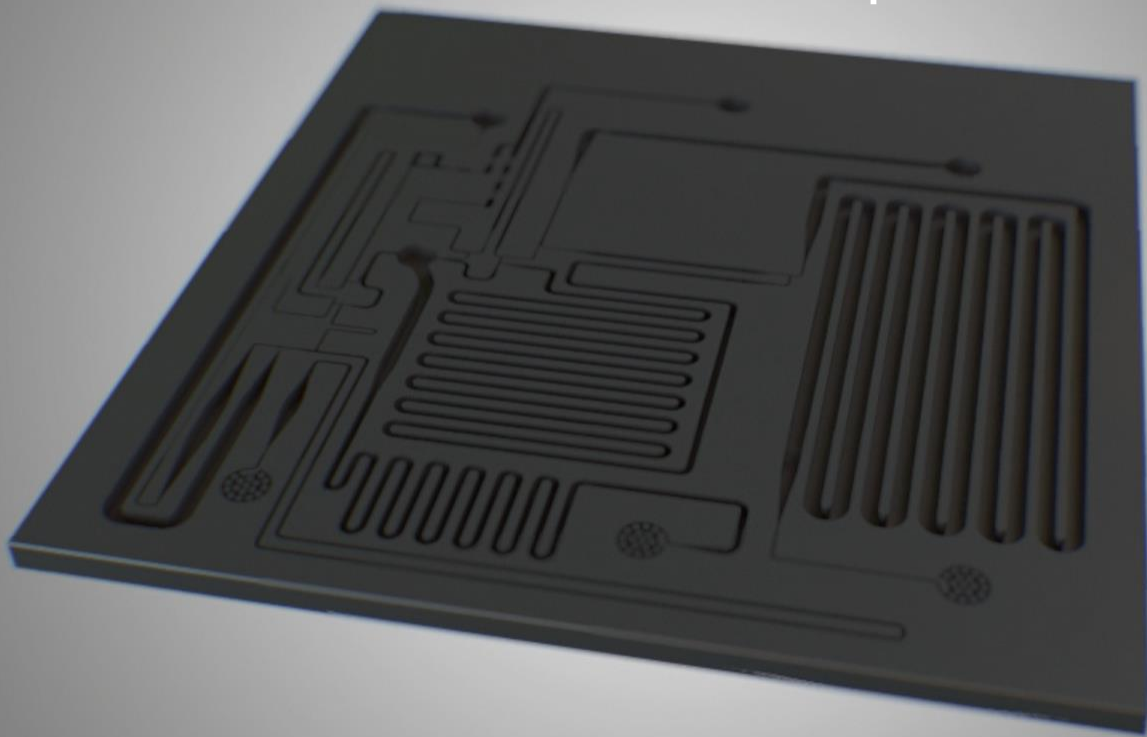


Point-of-care  
diagnostic device



*mi*DIAGNOSTICS

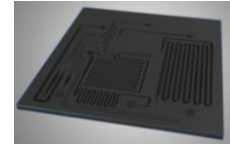
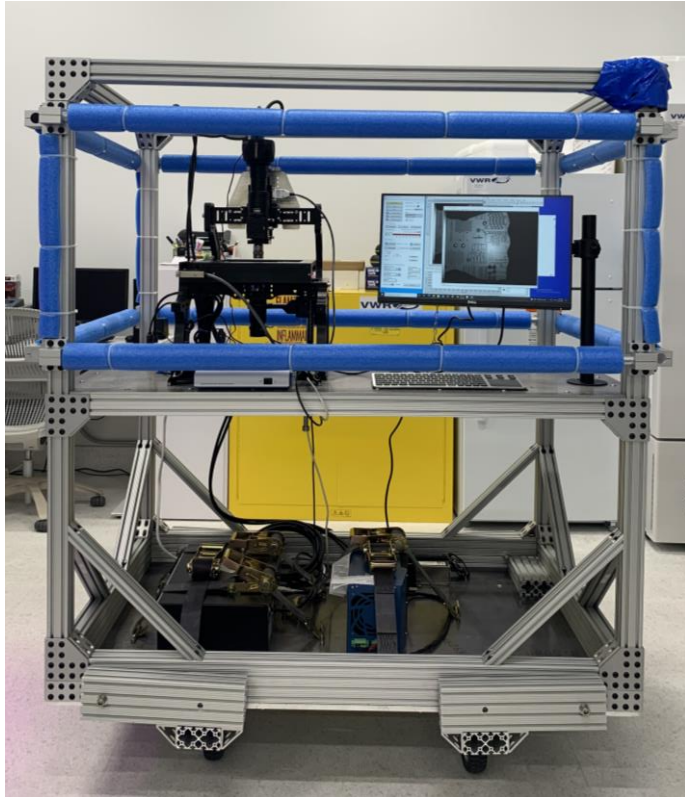
Core silicon chip with  
capillary force driven nanofluidics for sample handling



# Lens-free imaging for blood cell imaging



# Two main technology components were tested in flight

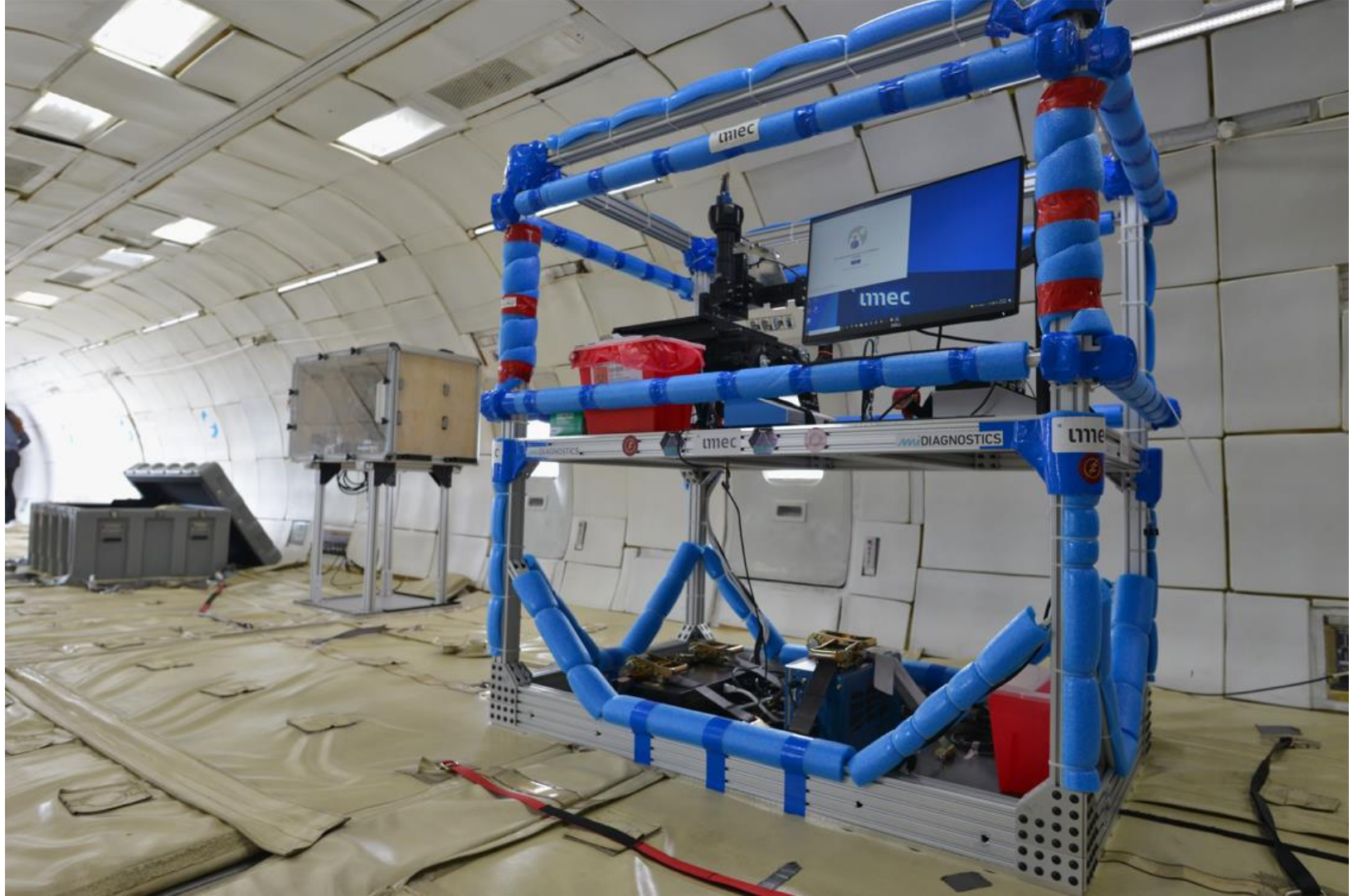


- Component 1:  
Visualization of fluidic performance of the silicon nanofluidic structures

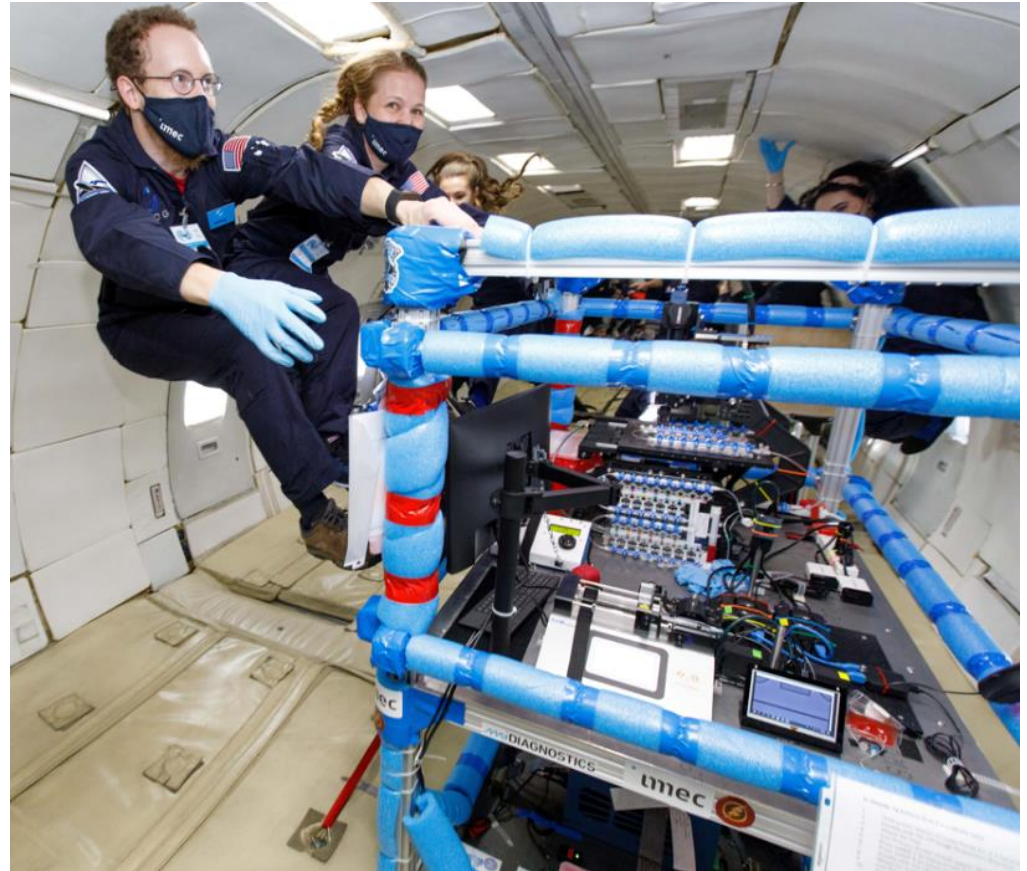


- Component 2:  
Lens-free imaging functionality and resulting blood cell imaging quality



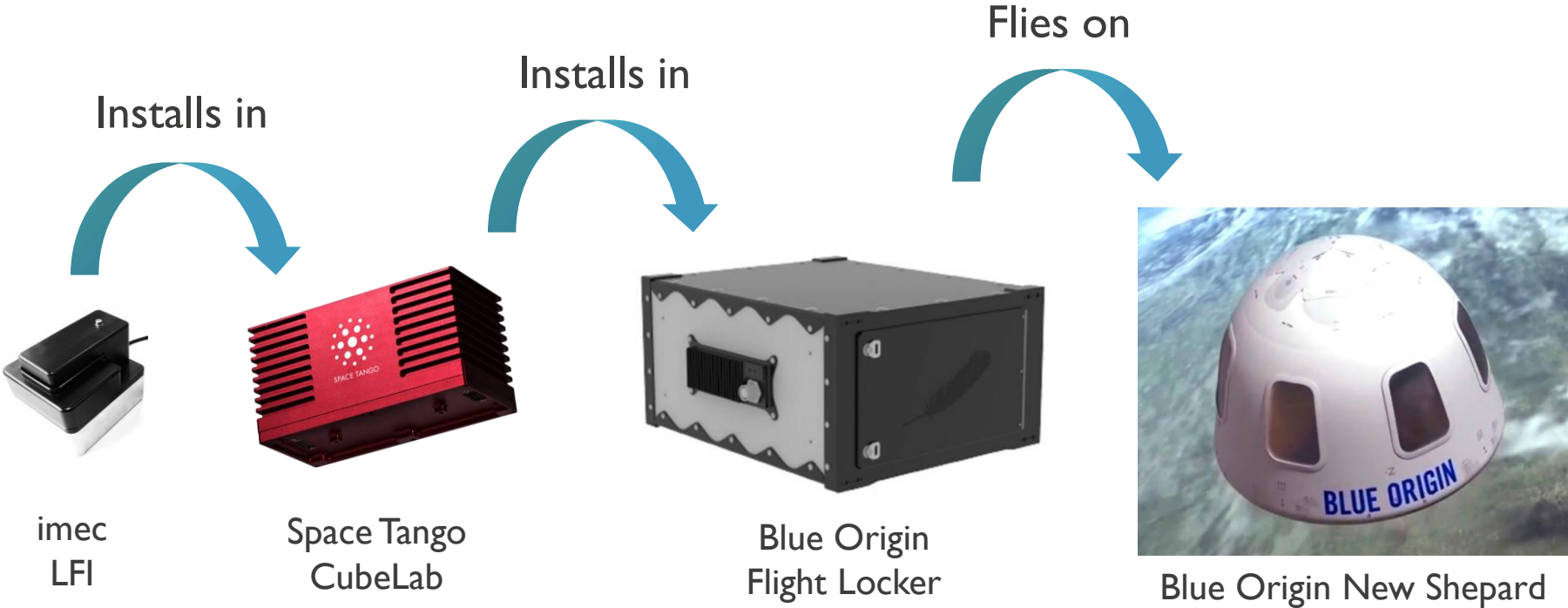








# Next step: Fully automated LFI test in suborbital flight





embracing a better life

[veerle.reumers@imec-int.com](mailto:veerle.reumers@imec-int.com)



NASA FLIGHT OPPORTUNITIES

# Thank you!

Flight Opportunities website:

<http://nasa.gov/flightopportunities>

Contact us:

[NASA-FlightOpportunities@mail.nasa.gov](mailto:NASA-FlightOpportunities@mail.nasa.gov)

