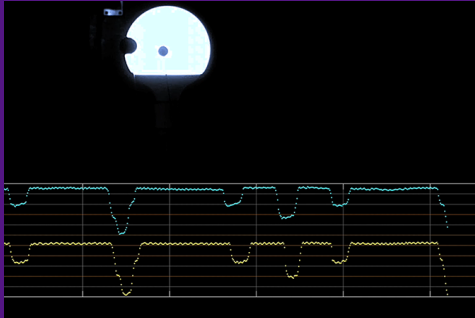


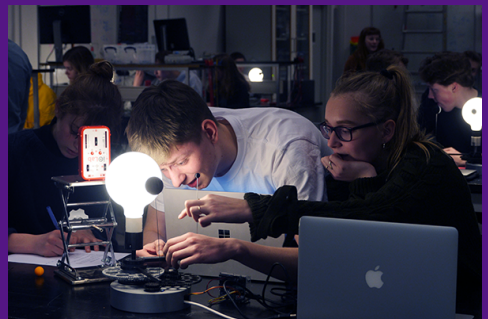
# EXOPLANET MYSTERY BOX



Our team devised a 3D-printed planetary model which illustrates the process of detecting exoplanets - planets outside the Solar System. The principle of the transit method is based on measuring a distant star's light intensity curve over time. The Kepler Telescope collected such data over several months. Now, the recently operational TESS satellite continues this mission. The method can show the orbital period of the exoplanets, together with other properties such as their size or albedo.

The model consists of a light-bulb (star) with interchangeable 3D-printed spheres (planets). The iOLab light sensor acts as the telescope. The top left image illustrates an example of light intensity data collected using the model.

This lab is recommended for high school level students. It offers working with new IT-devices, novel astrophysics concepts and a deeper understanding of what it means to experiment in astrophysics. Let us bring stars from the night sky right into our lab for you - try the Exoplanet Mystery Box!



# THE ULAB TEAM



## **Prof. Ian G. Bearden**

Ian is a particle physicist and a professor at the Niels Bohr Institute. He collaborates with CERN on projects such as ALICE and is responsible for both bachelor and candidate level courses at KU. Under his leadership, ULAB continues to produce new and exciting ways to teach physics, as well as educational models that gained international interest.



## **Anna Kristina**

My name is Anna Kristina, I'm 23 years old and I'm currently doing my master's degree in Physical Chemistry at KU. I'm interested in the area where physics and chemistry meet. I like teaching, so I thought ULAB would be a fun challenge – allowing me to practice, as well as a chance to do some cool and fun physics. In my spare time I like reading fiction and traveling.



## **Erik**

I am a master student at NBI's quantum physics specialisation. My interest lies mainly with the experimental work. I love being able to change and improve a setup and to implement new designs. Thus I am concentrating on electronical systems and optical experiments at the moment. The work at ULAB allows me to tinker with interesting labs, as well as come up with designs for future experiments.



## **Freja**

Hi, my name is Freja and I am 23 years old. I am doing a master's degree in quantum physics. I have been very curious about the world my whole life and I have been eager to understand the natural laws that surround us all every day. My biggest interest lies in the world of quantum mechanics in which all everyday intuition breaks down. I love to spread exciting knowledge in creative ways.

# THE ULAB TEAM



## **Jo**

My name is Jo and I'm 23 years old. I just finished my bachelor thesis in theoretical cosmology. When I saw the beauty and mystery the Universe has to offer, I knew I had to spend my life doing astrophysics. I love to communicate science and how amazing physics can be, and ULAB is a great opportunity to inspire young students and work with cool and fun people.



## **Jonas**

My name is Jonas and I'm 22 years old. I'm currently on my 3rd year of my bachelors in physics with a focus on condensed matter physics and simulations. I love teaching and I love experiments, so ULAB affords a fantastic opportunity to combine the two. In my spare time I like building electronics and I volunteer writing software for Roskilde Festival.



## **Marta**

I'm Marta and I'm 23 years old. I am studying biophysics, but my interests in science go far and wide. At the moment, my focus in science is on animals. ULAB is an amazing opportunity to learn how to share my ideas and knowledge with others in a fun and relaxed environment. In my free time, I like to swim and play with different types of visual arts.



## **Mikkel**

My name is Mikkel Oglesby and I am a physics master student with a minor in math. My goal upon finishing my degree is to teach at a gymnasium. My love for teaching is exactly why I have joined ULAB. I love to help others see the beauty of physics. I especially like optics, waves and thermo dynamics. I also have love for astronomy.

# THE ULAB TEAM



## **Nana**

I'm Nana and I'm 22 years old. I'm a physics student who is especially interested in quantum optics and as of late also computational physics. I have just finished my bachelor project in quantum optics and have begun my fourth year of studies. I love to play and experiment with things, and doing physics is the best way to do both!



## **Sif**

Hey, my name is Sif and I'm 21 years old. I'm a 3rd year physics and mathematics student. I knew I wanted to study physics since I was 13, to become an environmental scientist and save the world from climate change. What I love about physics is the feeling of clarity after trying to understand a certain concept for a long time, and suddenly it clicks.



## **Troels**

Hello! My Name is Troels and I am 28 years old. I have a bachelor's degree in physics and am now on my second year of a bachelor in mathematics. I love to teach and share my interest in physics with others and I plan to teach at a gymnasium, which is why I am at ULAB. Aside from the studies, my interests include movies and storytelling in general, as well as animals and biology.