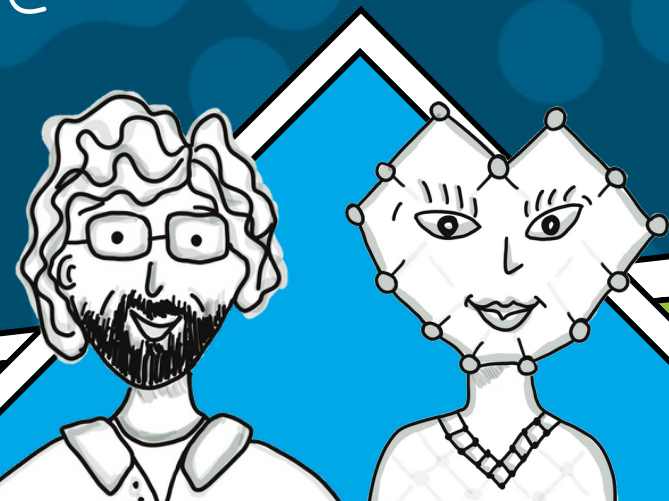
MOST-H_2

Nano the MOF & Professor Theodore save the planet!



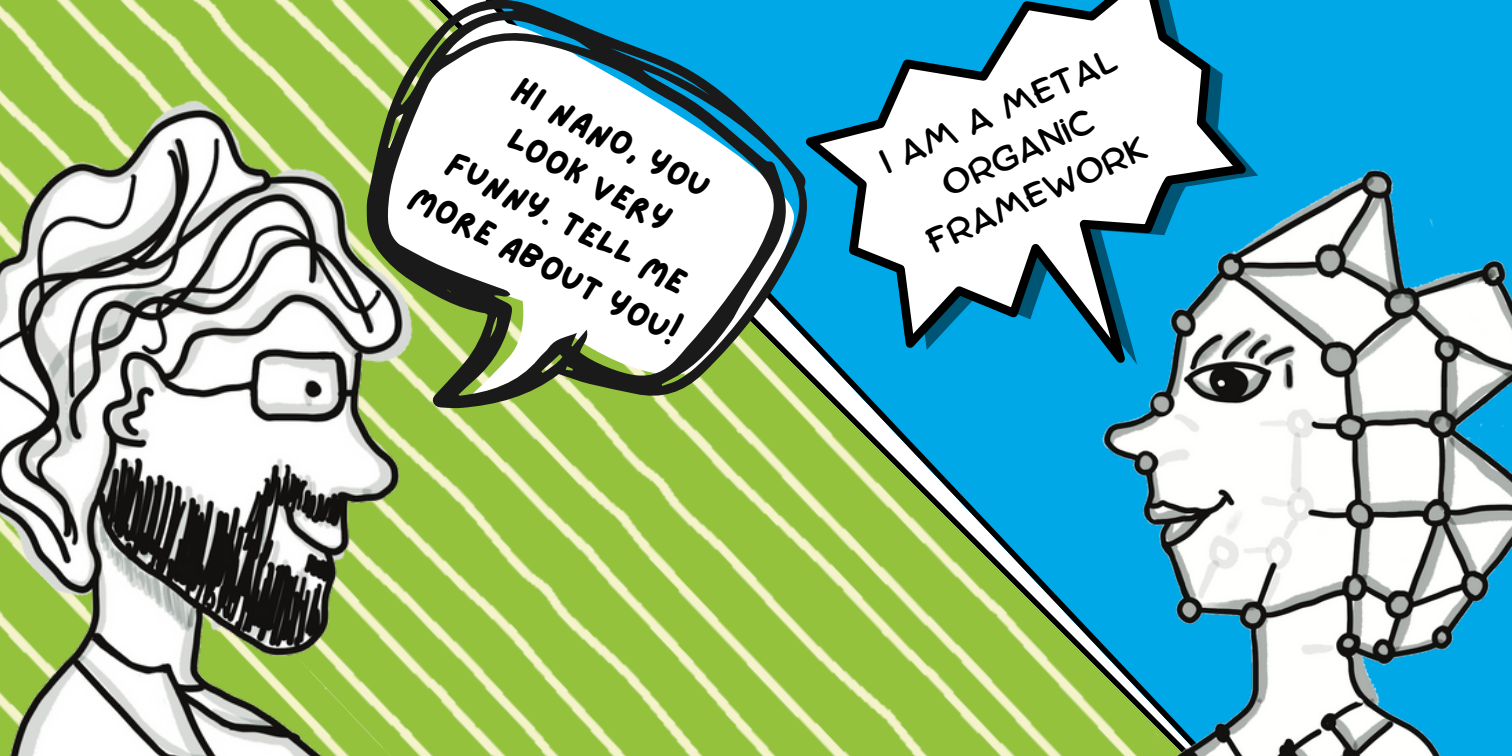

PROFESSOR THEODORE
NANO THE MOF

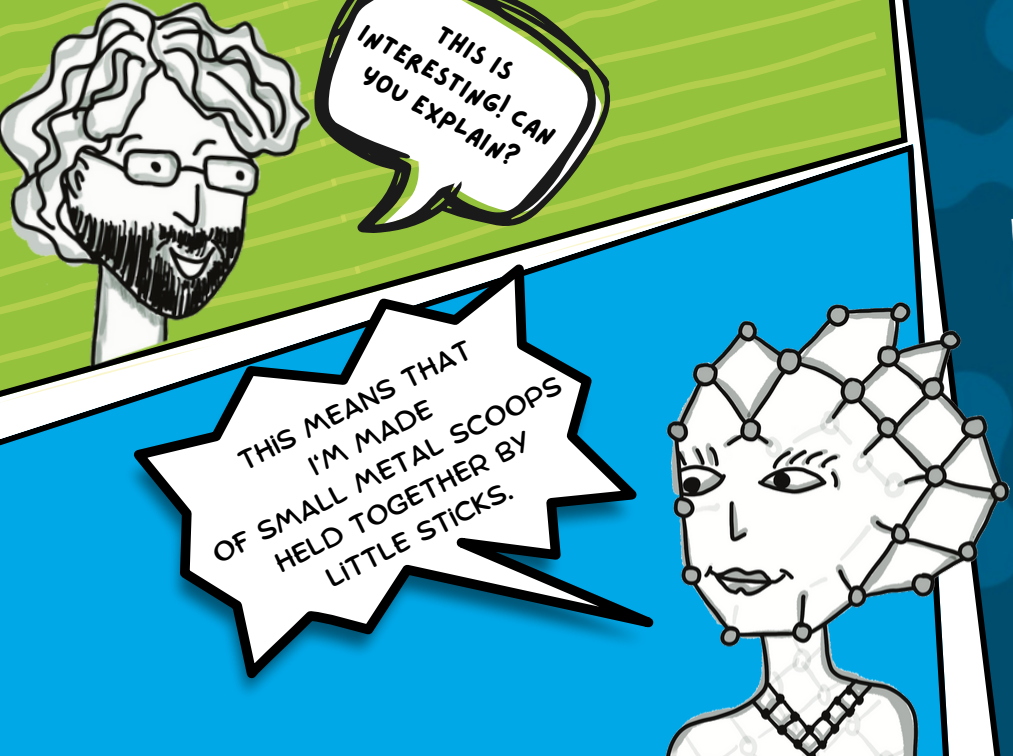

Hi, I AM NANO THE MOF
I AM VERY SMALL AND I HAVE A SUPER-POWER!


WITH PROFESSOR THEODORE, I CAN SAVE THE PLANET!
DO YOU WANT TO DISCOVER HOW?

EPISODE 1

The super-power of Nano the MOF


HI NANO, YOU LOOK VERY FUNNY. TELL ME MORE ABOUT YOU!
I AM A METAL ORGANIC FRAMEWORK



LEARN MORE

Metal Organic Frameworks (we will call them MOFs) are solid materials, made of metallic ions (which are acting as connectors) and of organic material (which are acting as linkers between the connectors).

Organic material is made of the same molecules than living organisms (plant, animals). This means mainly carbon, oxygen and hydrogen.

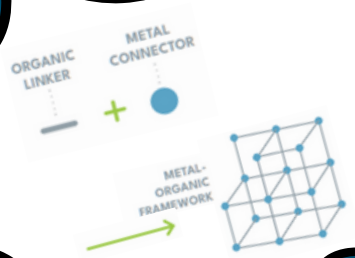
LEARN MORE

In MOFs, the geometrical structure between the metallic ions and the organic linkers creates high porosity.
This means there are empty spaces, named pores, within the MOFs. You can imagine something porous as full of tiny holes.

WHY ARE YOU SO SPECIAL?

I AM SUPER POROUS!

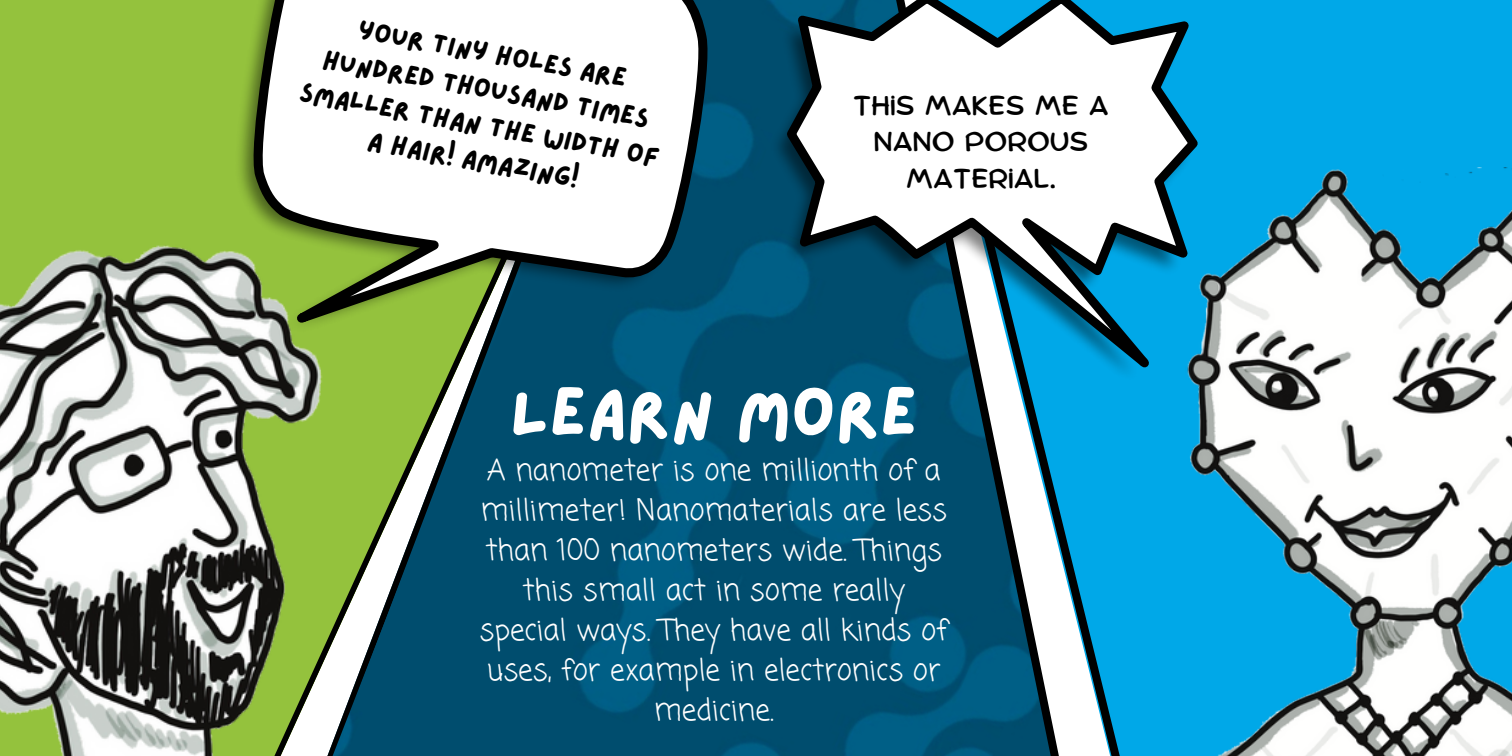
LEARN MORE



POROUS?

MY SKELETON IS MADE OF SCOOPS AND STICKS, IS FULL OF TINY EMPTY HOLES!

THIS MAKES ME VERY LIGHT



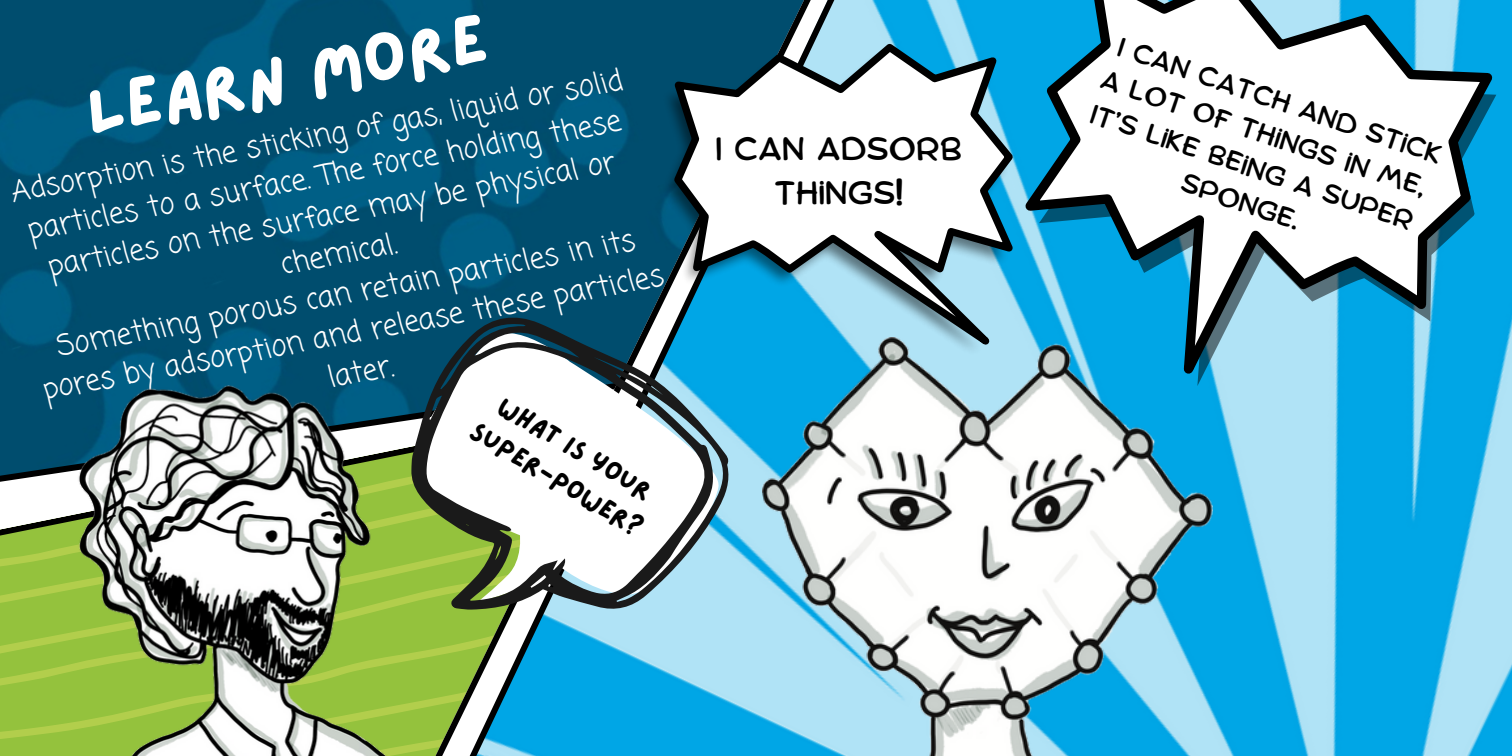
LEARN MORE

A nanometer is one millionth of a millimeter! Nanomaterials are less than 100 nanometers wide. Things this small act in some really special ways. They have all kinds of uses, for example in electronics or medicine.

LEARN MORE

Adsorption is the sticking of gas, liquid or solid particles to a surface. The force holding these particles on the surface may be physical or chemical.

Something porous can retain particles in its pores by adsorption and release these particles later.



LEARN MORE

Hydrogen is the simplest and the most abundant chemical element in the universe.
It can be used to produce electricity and to power vehicles. And this, without CO2 emissions.
Because hydrogen is very light, it is very difficult to store. MOFs can store hydrogen in their pores by adsorption.

WHAT CAN YOU DO WITH YOUR ADSORPTION POWER?

I CAN REMOVE POLLUTANTS FROM THE AIR OR FROM WATER!

I CAN ALSO STORE A LOT OF ENERGY BY ADSORBING GREEN HYDROGEN.

I CAN CARRY MEDICINES TO THE EXACT SPOT INSIDE OUR BODIES WHERE THEY ARE NEEDED.


THE END

THANK YOU

Nano the MOF and Professor Theodore got a lot of money from the European Union for helping to save the planet.
They say: "Thank you!"

AUTHORS

Idea & texts:
Marie-Eve Reinert (Steinbeis Europa Zentrum)

Illustrations:
Hanna Schaefer (Steinbeis Europa Zentrum)

Scientific direction:
Theodore Steriotis (National Centre for Scientific Research "Demokritos") &
Marta Rubio (Steinbeis Europa Zentrum)

SOURCES

For writing the "Learn more" sections , the authors used vocabulary.com, kids.kiddle.co, academickids.com and similar sources

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