

# Video: Boiling. We research. You benefit.

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Did you know that in microgravity you can better study the boiling process?

Boiling is a very common process in our everyday life. For instance, we usually boil water to cook or to clean. The boiling process is common in many engineering fields such as environmental applications and industrial chemical processes.

Understanding the dynamics of boiling is essential to improve [energy production](#) and conversion in [power plants](#), and to design future space applications like cryogenic fuel storage and propulsion.

On Earth the process happens too fast to be accurately observed and measured. But experiments conducted in low gravity environments, like on the International Space Station, allow us to observe phenomena like phase transition and the onset of bubbles much more clearly.

Such studies may lead to increase the energy efficiency of several application also here on Earth, from Power plants to [thermal management systems](#) used in [electric vehicles](#), laptops, and smartphones just to cite a few examples.

This video interviews Peter Stephan of the Technical University of Darmstadt in Germany talking about the Reference mUltiscale Boiling Investigation experiment, known affectionately as Rubi. Paolo Di Marco of the University of Pisa in Italy talks about pulsating heat pipe experiments and Catherine Colin from the Institut de Mécanique des

Fluides de Toulouse in France talks about heat transfer flow boiling and how to keep electronics cool. Lastly Giuseppe Zummo, of Italy's National Agency for New Technologies, Energy and Sustainable Economic Development, ENEA, explains how parabolic flights are used to test new two-phase flow heat transfer in weightlessness.

Do take advantage of the opportunities and capabilities that are available for your research and development to further grow and extend your achievements. Take the next step... the step to Space. We did it already.

Provided by European Space Agency

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