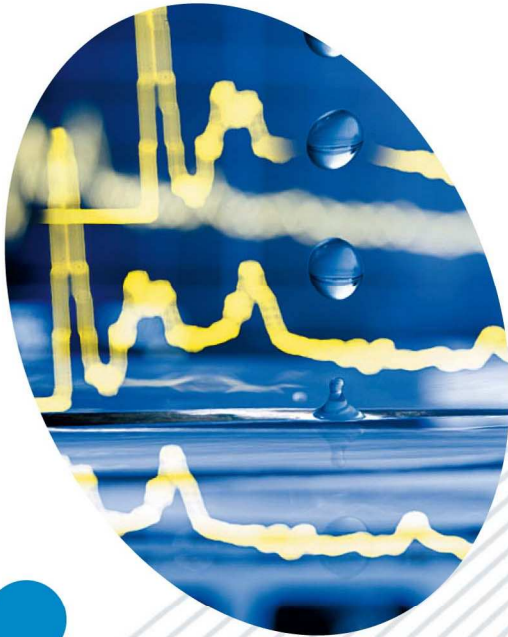


EnerFluide

Fluids and kinetic energy

• Energy - Electrostatic materials - Impacts



> Description

The aim is to provide autonomous energy sources for sensors in particular environments: obscurity, flow conditions, intermittent (wind, rain...).

This power type allows elimination of batteries, and associated disadvantages



Technologies developed

- Electrostatic material conversion
- Electrostatic conversion

Associated research topics

- Energy harvesting
- Flow or impact energy conversion
- Very low consumption electronics
- Dimensional optimization
- Sensors network

Potential fields of application

- Wind energy exploitation on very small scale and without important moving part (unexplored field)
- Very low transmission rate sensor power supply
- Industry: in situ control of power plant cooling operation

Presentation

Remote sensors require energy autonomy during their entire lifespan. Ideally they would find the energy necessary to their operation in their close environment. Additionally, some will have to function in the darkness in the presence of liquid or gas flow such as for example in cooling towers of power plants.

The EnerFluide demonstrator illustrates this study within the framework of the energy harvesting of rain drops which is one of the most difficult energies to recover because of its low level. It is possible to check experimentally the theoretical results, such as the conversion of energy using a piezoelectric membrane. For example, the energy recovered from one rain drop is of the same magnitude as the energy required for the transmission of one bit of information.

Currently, very low power electronics are under development. Actual operation will be checked on the demonstrator before being developed in integrated electronics.