



## FUSION RESEARCH

### SPINNING OFF SHORT-TERM BENEFITS

The road to realising fusion energy is paved by physics, material sciences, high-precision engineering, robotics, computing and modelling. And, on the way to achieving fusion energy, the road diverged into some surprising directions with fascinating results. Here are some examples.

FUSION AHEAD!

#### Medical Technologies



##### Medical magnetism

Superconducting magnets, which are being perfected to control fusion reactions, also lie at the heart of MRIs, an indispensable tool for doctors.

#### Environment

##### Squeaky clean

High-tech industrial wastes need high-tech cleaning approaches. Palladium alloy membranes, originally developed for cleaning up fusion waste, effectively treat effluents from chemical and automobile industries.



#### Superconductors



##### Super-conducting powers

From energy, transport, electronics to medicine, superconductors are powering varied advances. But what has powered advances in the superconducting industry? Fusion!

#### Telecommunications

##### The right kind of signals

Work on gyrotrons, ITER's powerful plasma heaters, allowed the start-up company, SWISSto12, to tap into terahertz signals.



#### Theoretical Physics



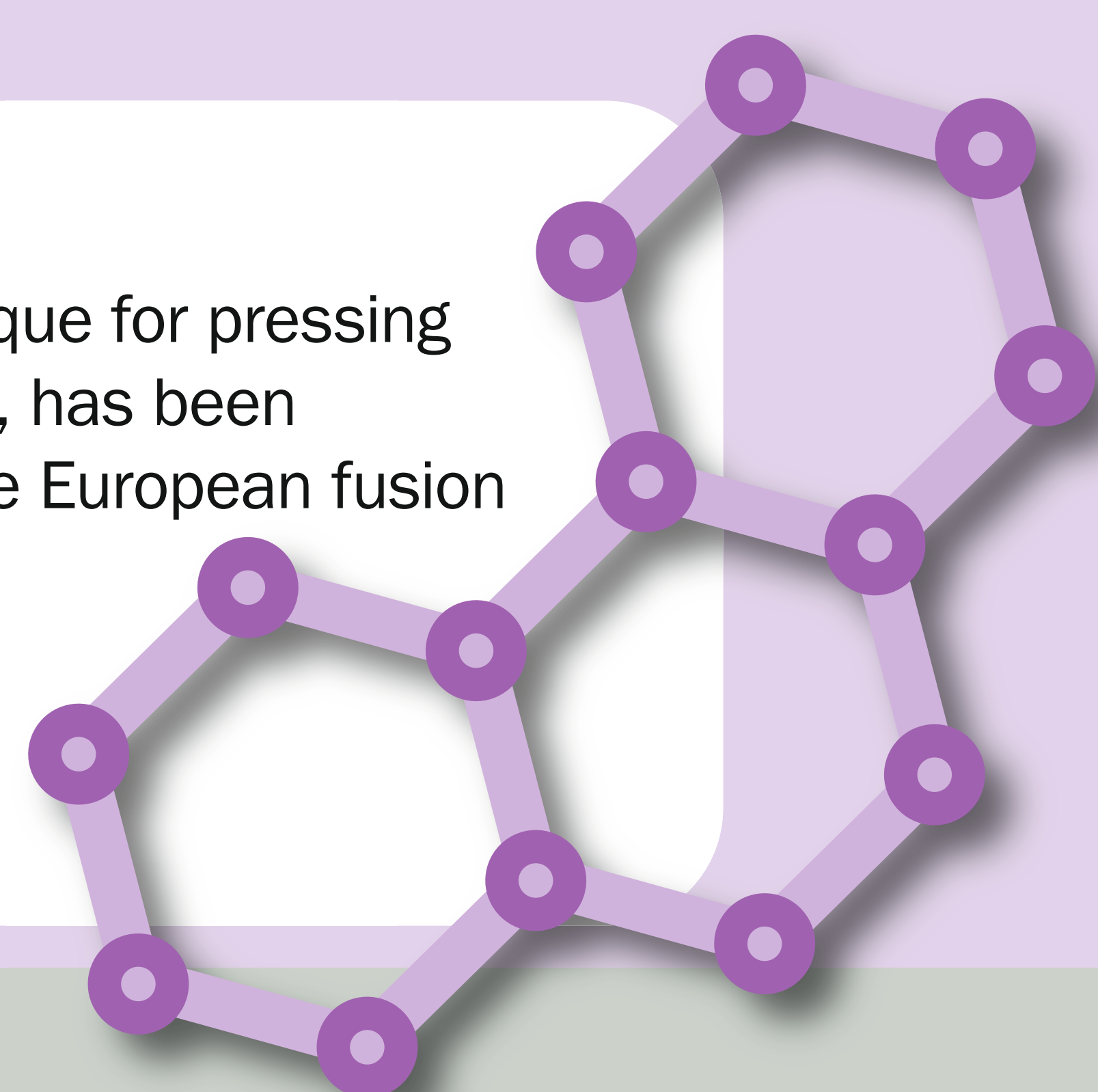
##### Sharing equations

The interdisciplinary nature of fusion research means an ongoing exchange of ideas among theoretical physics domains: plasma physics, fluid dynamics, astrophysics, turbulence, just to name a few.

#### Material Sciences

##### It's a material world

Explosive metal forming, a technique for pressing metal sheets into desired shapes, has been extensively used for devices in the European fusion programme. Now the company that does this, 3D Metal Forming, has expanded its client base to include the aeronautics industry.



#### Remote Handling



##### Remote future ... not so remote

Remote handling techniques that are being used in EUROfusion's JET Tokamak, are being applied to high-energy physics, space science, nuclear decommissioning, and modern surgical methods.

Further information at:



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