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Status and development of superconductive MgB₂ wires and tapes

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The Magnesium Diboride is a superconducting compound discovered in 2001 with a relatively high-critical temperature. The absence of weak-link and the simple crystalline structure allows producing low-cost wires through the powder in tube (PIT) technique, allowing the industrial application.

In the past ten years, the MgB₂ wire technology has made a significant progress, thanks to the continuing development and improvement supported mostly at industrial level. MgB₂ is now a good candidate to replace NbTi in cryogenic-free MRI magnets, but also in rotating electrical machines, wave-energy converters and in high current cables for powering devices or in transmission and distribution electrical power lines.

The effort made by Columbus MgB₂ wire unit (ASG Superconductors Spa) develop a technology which allows to produces MgB₂ multi-filamentary wires with unit length exceeding 2-4 Km in a single piece.

Now the development efforts are oriented to improve the critical current in-high-field performances, this challenge is part also of EASITRAIN project.

Here we present the status and the plans for future development.

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