

European Union's Project: Clean Energy from Hydrogen-Metal Systems (CleanHME)

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A consortium of 16 scientific institutions and trade companies from Europe, Canada and the US started in 2020 a research project devoted to the study of various powders and metallic bulk materials in a hydrogen atmosphere to find the best solution for a future nuclear fusion energy source at extremely low energies. The project will be supported by the European Union over the next four years. The main research idea is to combine accelerator experiments performed at the lowest possible energies that enable the precise determination of electron screening energies and gas-loading experiments measuring excess heat and the expected low-level nuclear radiation. This approach also aims to understand the mechanisms by which nuclear processes are enhanced at room temperature and at the slightly increased temperatures observed in previous experiments. We also hope that the optimization of the chemical composition of active materials, gas pressure and ambient temperature will allow the construction of a new type of small gas reactors producing cheap, clean and safe energy for various purposes. In this talk, our research program and the research methods used will be presented in detail.

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