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 First meeting report

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Editor(s)	Natalia Targosz-Slecza, Konrad Czerski / University of Szczecin Bo Hoistad / Uppsala University	
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<i>Authors</i>
Natalia Targosz-Sleczka, Konrad Czerski / University of Szczecin Bo Höistad / Uppsala University
<i>Document editors</i>
Natalia Targosz-Sleczka / University of Szczecin Email: natalia.targosz-sleczka@usz.edu.pl Konrad Czerski / University of Szczecin Email: konrad.czerski@usz.edu.pl Bo Höistad / Uppsala University bo.hoistad@physics.uu.se

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Executive Summary

This report summarizes the first General Assembly meeting of CleanHME project (Clean Energy from Hydrogen-Metal Systems) that has received funding from the European Union's Horizon 2020 research and is directly related to the *FET Proactive action, call FETPROACT-EIC-05-2019*.

The meeting was held at the Uppsala University, Sweden and lasted two days, between 23-24.09.2021. Due to the COVID-19 pandemic, the meeting was held in a hybrid manner, only some of the project participants came to the meeting in person, the rest took part in the conference via ZOOM platform.

The meeting allowed the participants to report and discuss about the scientific efforts concerning the first year of the project. Participant were able to establish new lines of communication. The main aim of the was to discuss wide range of collaboration aspects like:

- the scientific progress and status of tasks' realization after the first year of the project,
- challenges and difficulties in the first year of project's realization,
- exchange of ideas on the level of individual WPs and between them,
- project schedule for the next years, managing and reporting,
- organization of future meetings.

The first part of the first day of the conference was open for the general public and dedicated to nuclear reactions at extremely low energies. The other parts of the meeting were available to consortium participants only and referred to the recent experimental results as well as theoretical studies of possible energy source based on Hydrogen-Metal systems.

1 Introduction

This report summarizes the first General Assembly meeting of the Horizon 2020 project CleanHME. The meeting was held at the Uppsala University (Sweden) and organized in hybrid manner. The report is a deliverable related to the work package number 1 (WP1, Project Managing), the main task of which is coordination of the research project, project administration, research planning and management, as well as resolving potential problems and conflicts within the consortium.

2 Organization and structure of the meeting

First CleanHME General Assembly meeting was organized by the Uppsala University (UU), which is the leader of WP3 in the project. The conference program is attached in Annex 5.1. The organizing committee consisted of three members: Prof. Bo Höistad, Prof. Per Sjöberg and Prof. Jozef Zlomanczuk.

The meeting was held in the hybrid manner due to the COVID-19 pandemic at the Uppsala University. Participation in the first session of the meeting was open to all interested persons coming from research, industry and schools. All the other sessions were available only to the partners of the consortium, allowing for free scientific discussion. A remote connection to the meeting was possible via ZOOM platform. In total, thirteen speakers presented their contribution to the meeting.

Meeting opening and an introductory lecture entitled Nuclear Reactions at Extremely Low Energies as New Energy Sources given by Konrad Czerski, University of Szczecin on Thursday, September 23 at 10:15-10:45, was open to the general public on zoom link:

<https://uu-se.zoom.us/j/66198209995> , meeting ID: 661 9820 9995.

During the first day, in the first session of the meeting, twenty persons took part directly. Additionally, around 16 people attended remotely via ZOOM connection. Later, lectures about low energy nuclear reactions were given to present history and state of the art of the research in this field, as well as the overview of the present scientific efforts across the world. Afternoon session was devoted to the review of experiments related to our project.

The second day of the meeting was dedicated only to the members of CleanHME consortium and was devoted to the review of experiments related to our project. Nineteen participants were present in person and fourteen online. In the afternoon there was a session devoted to reporting and financial managing of the project. Participants visited laboratories at the Uppsala University, contributing to the CleanHME project.

The list of participants that were present in person and those who participated online is specified in Annex 5.2.

The group-photo of participants that attended in person is attached as Annex 5.3.

3 Conclusions from the discussions

The agenda of the meeting was planned in such a way as to allow sufficient time for discussion after every scientific presentation. The discussion was a very important part of the meeting. The main conclusions were as follows:

- In the whole world, including Europe, USA, Japan and China, the Low Energy Nuclear Reactions (LENR) are being studied as a future energy source.
- LENR can be claimed only if the cumulated energy is clearly larger than possible chemical reactions.
- Excess heat is the important result.
- In several experiments driven within the CleanHME project we were able to produce some excess heat.
- Wide range of materials studied already, however the search for the optimal one still continues.
- With high probability we can rearrange our experimental setups to manufacture energy producing devices.
- Scientific work must continue to elaborate better systems and describe a comprehensive theory.
- The goal of the project to build new energy sources must be fulfilled.
- Due to COVID-19 pandemic the consortium-internal collaboration was extremely difficult. However, if only the conditions allow, we should cooperate more dynamically to reach our goal.
- The consortium is working systematically to reach the objectives of the project. The deliverables and milestones are being completed on time or with a slight delay caused by the pandemic situation.

4 Social Events

During the first General Assembly meeting of the CleanHME project the consortium's participants and guests could meet each other and discuss the scientific potential of the low energy nuclear reactions. The conference gave opportunity to exchange ideas, consider different approaches and propose solutions to some of the most intriguing questions and tasks. Social events were planned to enable the exchange of ideas in a relaxed manner. Those included:

- Lunches on September 23 and 24, 2021,
- Conference Dinner on September 23, 2021.

5 Annexes

Annex 5.1 – CleanHME First Meeting Agenda



**Clean Energy from Hydrogen-Metal Systems
– CleanHME –**

General Assembly Meeting of the Project Consortium supported by the EU grant 951974:
FETPROACT-EIC-05-2019 Boosting emerging technologies
Breakthrough zero-emissions energy generation for full decarbonization

23.09.-24.09.2021, University of Uppsala, Sweden

The main aim of the project is to develop a new, clean, safe, compact and very efficient energy source based on Hydrogen-Metal systems, which could be a breakthrough for both private use as well as for industrial applications.

Organizers: Department of Analytic Chemistry, Uppsala University
Organizing Committee: Bo Höistad, Per Sjöberg, Jozef Zlomanczuk

Combination of the face-to-face conference and on-line participation (Zoom platform)

Conference Program:

Thursday, September 23

9:30 -10:00 Check in

Chair person: Bo Höistad

10:00 -10:05 Short introduction, Bo Höistad, Uppsala University

10:05-10:15 Welcome address, Helena Danielson Head of BMC Chemistry, Uppsala University

1. 10:15-10:45 Konrad Czerski, University of Szczecin, *Nuclear Reactions at Extremely Low Energies as New Energy Sources*. Introductory lecture, open to the general public on special zoom link.

10:45-10:55 Questions

10:55-11:15 Coffee break

2. 11:15-11:45 Jacques Ruer, SART von Rohr, *Assessment of energy release in cold fusion experiments: COP and Excess heat*

11:45-12:00 Discussion

3. 12:00-12:30 Dimiter Alexandrov, Lakehead University, *Recent experimental outcomes about interaction of deuterium with solid matter*, **On Zoom**

12:30-12:45 Discussion

12:45-13:35 Lunch at café Alma in the university building

Chair person: Natalia Targosz-Ślęczka

4. 13:35-14:05 Andras Kovac, Broadbit Energy Technologies, *Where exactly is the heat generated in LENR experiments?*

14:05-14.15 Discussion

5. 14:15-14:45 Alberto Carpinteri, *Politecnico di Torino, Correlation between nano-mechanics instabilities, sub-atomic particle emissions, and stoichiometric balances: Geophysics, Electrochemistry, Fluid Dynamics* , **On Zoom**

14:45-15:00 Discussion

6. 15:00-15:30 Jean-Paul Biberian, VEGATEC, *Presentation of Vegatec activities*

15:30 -15 45 Discussion

15:45-16:05 Coffee break

7. 16:05-16:35 Jozef Zlomanczuk, Uppsala university: *The Uppsala Calorimeter*

16:35-16:50 Discussion

8. 16:50-17:20 Guido Parchi, FutureOn, *AHEs, EM and neutron(?) emissions detected during D gas loading experiments in metallic powders"*

17:20-17:35 Discussion

19:15 Conference dinner at the student nation Västgöta Nation, Slottsgränd 12.

Friday, September 24

Chair person: Jozef Zlomanczuk

9. 9:30-09:55 Natalia Targosz-Ślęczka, University of Szczecin , *Study of LENR using linear accelerator under UHV conditions.*

09:55- 10:05 Discussion

10. 10:05-10:35 Francesco Celani, INFN, *Excess heat from electric stimulation of chemically prepared Constantan wires in hydrogen atmosphere*

10:35-10:45 Discussion

10:45-11:00 Coffee break

11:00-11.30 Konrad Czersk, with the EU project officer on zoom : a) Plans for the October 8 meeting.

11. 11:30-11:50 Bo Höistad, Uppsala University, *latest results from a run with Constantan fuel mixture in the Uppsala reactor*

11:50-12:00 Discussion

12:00-12:45 Annika Windahl Pontén, Uppsala University, Presentation of the Uppsala University and sightseeing of the university building

12:45-13:35 Lunch at café Alma in the university building

Chair person: Konrad Czerski

12. 13:35-14:00 Sveinn Ólafsson: *Experimental update on the Hydrogen Rydberg matter instrumentation at University of Iceland* , **On Zoom**

14:00-14:15 Discussion

13. 14:15-15:45 Matej Lipoglavšek, Institut Josef Stefan, *Electron screening in titanium.*

15:45-16:00 Discussion

16:00- 16:20 Coffee break

16:20 Open discussion of any kind of relevant matter.

17:00 Closing of the meeting

17:00 Visit to the Uppsala laboratory at Analytic Chemistry , BMC, Husargatan 3.

17:30 Bus transport to BMC

Annex 5.2 – CleanHME First Meeting List of Participants

The list of participants that came to the meeting in person:

Name	Institution
Jean-Paul Biberian	VEGATEC, France
Francesco Celani	INFN-LNF, Italy
Konrad Czernski	University of Szczecin, Poland
Joffrey Fontaine	VEGATEC, France
Bo Höistad	Uppsala University, Sweden
Mateusz Kaczmarski	University of Szczecin, Poland
Arnaud Kodeck	LAKOCO Spri, Belgium
Andras Kovacs	BroadBit Energy Technologies, Slovakia
Edyta Kowalczyk-Luc	University of Szczecin, Poland
Agata Kowalska	Maritime University of Szczecin, Poland
Matej Lipoglavsek	Jozef Stefan Institute, Slovenia
Cesare Lorenzetti	INFN, Italy
Robert Michel	VEGATEC, France
Guido Parchi	FutureOn, Italy
Jacques Ruer	SART von Rohr, France
Per Sjöberg	Uppsala University, Sweden
Natalia Targosz-Slecza	University of Szczecin, Poland
Mathieu Valat	BroadBit Energy Technologies, Slovakia
Jozef Zlomanczuk	Uppsala University, Sweden

Table 1 List of participants attending in person

The list of participants taking part in the conference via ZOOM platform

Name	Institution
Ugo Abundo	FutureOn, Italy
Dimiter Alexandrov	Lakehead University, Canada
Sergio Bartalucci	Istituto Nazionale di Fisica Nucleare, Italy
Sebastien Bucher	LIFCO Ind., France
Alberto Carpinteri	Politecnico di Torino, Italy
Aleksandra Cvetinovic	Jozef Stefan Institute, Slovenia
Margaretha Engström	Energi och kunskap, Thatha AB, Sweden
Christophe Le Roux	Centre National de la Recherche Scientifique, France
Emilio Mariotti	Universita Degli Studi di Siena, Italy
Francesco Montagnoli	Politecnico di Torino, Italy
Stefan Montin	Energiforsk, Sweden
Florian Metzler	Massachusetts Institute of Technology, USA
Sveinn Olafsson	University of Iceland, Iceland
Roland Pettersson	Uppsala University, Sweden
Domenico Scaramozzino	Politecnico di Torino, Italy
Vladimir Vysotskii	National University of Kyiv, Ukraine

Table 2 List of online participants

Annex 5.3 – CleanHME First Meeting Conference Photo

