

COST Action: CM1404

Reference: ECOST-STSM-CM1404-240417-086008

STSM dates: from 24-04-2017 to 28-04-2017

STSM Applicant: Tomislav Simonovic

Host University: Norwegian University of Science and Technology, Department of Energy and Process Engineering

Host Supervisor: prof. Teresa Løvås terese.lovås@ntnu.no

1) Purpose of the STSM;

Planned aim was to advance my knowledge in field of combustion process optimisation (e.g. modelling, optimisation of the process etc.) and to advance my doctoral dissertation. It is turned out that planned activities, on numerical simulation of porous medium burner, were too optimistic for such a short period. Having that in mind, new plan of activities was made on site.

In agreement with prof. Teresa Løvås and her associates it was concluded that main purpose of this STSM is to make a first step in collaboration between the host University (NTNU) research group, led by prof. Teresa Løvås, and the home University (UBFME) research group, led by prof. Dragoslava Stojjković and doc. Marta Trninić. Both research groups work within a similar research area, which includes biomass gasification, pyrolysis, combustion etc. Additional purpose was to establish long term collaboration on existing projects as well as on future projects. Host University has a respectable experimental installations that can be used by researchers from home university. Also, NTNU research group are proficiency in numerical simulations and CFD analyses, which can potentially be very fruitful for UBFME researchers and for myself.

2) Description of the work carried out during the STSM and the major results;

My activities during the STSM was mostly focused on analysing papers of authors from host research group, to learn about their capabilities in numerical simulations and about possibilities for experimental research that could be done at NTNU. Possibilities for experimental research demonstrated for us, from NTNU and SINTEF participants, during several meetings and presentations. Unfortunately, the STSM lasted only five days, and in that period only several meetings and presentations were held:

Introduction meeting 24.04.2017.

Host University meeting participants:	prof. Teresa Løvås, dr Tian Li and MSc Kathrin Weber
Home University meeting participants:	dr Marta Trninić and MSc Tomislav Simonović

At this meeting all participants introduced themselves and, in basic form, introduced their ongoing research activities and main interests. Participants also presented their relevant papers.

Main meeting 25.04.2017.

Host University meeting participants:	prof. Teresa Løvås, dr Morten Grønli (Laboratory manager), dr Tian Li and MSc Kathrin Weber
SINTEF	dr Øyvind Skreiberg, dr Roger Khalil, dr Liang Wang,
Home University meeting participants:	dr Marta Trninić and MSc Tomislav Simonović

At this meeting participants from the UBFME introduced NTNU research group with current research activities at UBFME, experimental installations and equipment used in research activities, and objective of several international and domestic projects in which UBFME participate.

Participants from the NTNU presented their research activities in more detail, presented ongoing projects and activities as well as an experimental installations and equipment they use in their research activities.

Discussions that started after presentations determined possible future collaboration. All participants conclude that collaboration could be fruitful for all sides. Additionally, any form of collaboration should lead to publication of papers.

Meeting with SINTEF 26.04.2017

SINTEF meeting participants:	dr Øyvind Skreiberg, dr Liang Wang,
Home University meeting participants:	dr Marta Trninić and MSc Tomislav Simonović

At this meeting participants from the SINTEF presented their ongoing research activities and projects, also they presented in many details all experimental installations and equipment in their laboratory. They expressed their ambitions with equipment and installations that are under construction, and they encouraged us to make a proposal for experimental research on their installations, especially for pressurised gasifier and pressurised TGA.

A tour of the laboratory 27.04.2017

Host University participants:	prof. Nataša Nord
Home University participants:	dr Marta Trninić and MSc Tomislav Simonović

Prof. Nataša Nord showed as laboratory at Department of Energy and Process Engineering, there were many experimental installations that can be used for students as well as for PhD candidates.

Good by meeting 28.04.2017.

Host University meeting participants:	prof. Teresa Løvås, dr Tian Li and MSc Kathrin Weber
Home University meeting participants:	dr Marta Trninić and MSc Tomislav Simonović

At this meeting, we discussed about STSM and about results from chosen publication, that Host university participants provide us. Then, Marta presented her model for gasification and she suggested to compare her model with Kathrin's gasification stochastic model. And, at the end, plans and agreements for future collaboration were made.

3) How the STSM has contributed to the Action's aim;

“SMARTCATS COST Action aims to set-up a Europe-wide network of leading academic and research institutions and key industries to promote the use of smart energy carriers on a large scale in order to increase fuel flexibility and carbon efficiency of energy production and to support distributed energy generation strategies”, (<http://www.smartcats.eu>).
 Regard to mention, this STSM gave opportunity for network establishing between UBFME

and NTNU. The plan for further collaboration work was made (experimental and modelling work exchange in field biomass and waste to energy).

4) Future collaboration with the host institution (if applicable);

According to the plan, the collaboration will be continued. Prof. Terese Løvås recommended that we should make a research proposal for experimental research at NTNU (or SINTEF). Experimental research will potentially start from September 2017.

Beside the fact, that I will make research proposal for experimental research at NTNU, my plans at home university are to start numerical simulations of porous medium burner and to do some experimental research at home university experimental installation.

Hopefully, further collaboration will be beneficial for both sides.

5) Foreseen publications/articles resulting from the STSM (if applicable);

Depending on future collaboration, one or more publications could be published, especially if experimental work starts.

6) Confirmation by the host institution of the successful execution of the STSM;

Kindly ask You, please see the pdf document written by the host, prof Dr Terese Løvås, attached to the email.

7) Publications resulting from STSM activities must acknowledge COST Action CM1404.

If this collaboration results with any publications we will not forget to acknowledge COST Action CM1404.

Financial Report

Travel	896 Euro
Subsistence	250 Euro
Total	1146 Euro

I would like to thank prof Dr Terese Løvås, MSc Kathrin Weber and Dr Tian Li and other members of the NTNU research team for friendly hospitality and given support, as well as to all members of MC of COST Action CM1404 (SMARTCATS) for their support and for given the oportunity to be a part of this action.