HCCI Engine

Purpose of the meeting: First meeting and definition of the project frame	Place: Gent University
Prof. Sebastian Verhelst Stijn Broekaert Prof. Anne-Lise Gehin Prof. Jean-Yves Dieulot Alexandre Moulé Clément Taché	Date/Hour : 09/10/2014 14h30

Agenda :

1. Presentation of the department of Flow Heat and Combustion Mechanics
2. Presentation of the two Polytech Lille students
3. Question / Answer and definition of the project main step.

Exchanged informations :

- The department's philosophy can be summarized as « Keep the engine, change the fuel ». They are trying to improve the existing engine by developing sustainable compact and scalable engine optimization tools.

- The two French students are in last year of graduate school of engineering at Polytech Lille are following a curriculum in: Computer science, electrical, electronics and control engineering. (No background about thermic engines). They made a presentation of their previous research on the subject.

- The last part of the meeting led to the definition of the project main steps and the explanation of the expected work.

- The meeting ended with a presentation of the test bench.

Decisions :

- The French students spend an average of 10 hours / week until January and are full-time working on the project from January 26 to February 28.

- The first step of the work will consist of detecting the ignition time. The Gent party will send available data (pressure, temperature, heat flux ...) and some information about methods for detection of the knock phenomenon. We plan to use detection methods that can be found in Basseville and Nikiforov "Detection of Abrupt Changes: Theory and Application", 1993 .

- The French students will make a review of the literature on control-oriented models of the combustion in a HCCI engine.

- The two French students will go back to Gent to participate in a test campaign and to show their results.

Hypothetic Schedule :

- Feedback from Gent (asap)
- Exploration of detection methods (3 weeks)
- Test campaign (December / when flux sensor is available)