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JISFA1#2 - Combustion noise and engine noise: current computational capabilities and fuel expected issues

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Combustion noise is becoming an increasing subject of interest and has been brought forward with the uprise of premixed combustors. This combustor technology which has entered in production and comes with lower pollutant emissions of new engines, also comes with a sensitivity to the engine acoustics and the potential triggering of new and unwanted noises heard outside the engine. Indeed, such combustion dependent features can now be heard outside because of all the progresses built around engine noise mechanisms which are today better controlled leaving the place for combustion noise to express when it could not with older engines. This question of combustion generated noise is furthermore expected to re-emerged especially with the foreseen use of new fuels like hydrogen. In the present talk, recent advances on this problem and obtained within CERFACS will be detailed and discussed based on high-end fully unsteady numerical predictions and their exploitation for a better understanding of combustion noise.

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