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Journal Name:	**Physical Science International Journal**
Manuscript Number:	**Ms_PSIJ_22317**
Title of the Manuscript:	**Improvement of Cryogenic Space Rocket Engine Ignition: inert gas sweep effects**
Type of the Article	**Original Research Article**

General guideline for Peer Review process:

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty'**, provided the manuscript is scientifically robust and technically sound.
To know the complete guideline for Peer Review process, reviewers are requested to visit this link:

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PART 1: Review Comments

	Reviewer's comment	**Author's comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Compulsory REVISION comments		
Minor REVISION comments	This paper deals with important subject of cryogenic rocket engine. The contents may be useful to researchers and I'd like to recommend to publish this thesis. However, some minor changes are needed, especially for false English expression and grammar and improper word selection Please revise with reference to attached lists. You suggest that the difference of thermo-acoustic oscillations between condition 1 and 2 is due to thermal effect. However, the basis for your suggestion is not explicit. State your ground on line 457-464. **ABSTRACT** ➢ 2) with helium gas injected simultaneously with nitrogen during the initial 150 ~~first~~ milliseconds. ➢ density and pressure at injector exit **were** ~~where~~ measured by means of load cell, piezoresistive	

	sensor and resonance cavity, respectively**.** ➢ led to suggest the thermal effect as **the** major effect in the production of these oscillations. ➢ it shows that TAO are generated in the unit engine much earlier than ~~after~~ ignition inside the combustion chamber. **Introduction** 16 **In recent years,** ~~Since a few years,~~ with the proliferation of project 17 new stakes have been raised regarding ignition 31 two propellant ~~fuel~~ supply turbopumps themselves operated ~~fed~~ by a portion of the resulting combustion gases 34 Oxygen enters a cavity called LOXdome and is supplied to ~~the~~ combustion chamber 50 The time lasting between H2 admission and ignition generally lasts several hundreds of **milliseconds** ~~seconds~~ 51 This procedure creates an insufficient ~~reducing~~ mixture before ignition 52 This transient combines different types of oscillations due to ~~the LOXdome and~~ the temperature difference ~~of temperature~~ between the cryogenic propellants and the walls in the LOXdome [15]. 55-57 This complex thermo-hydraulic instabilities do not facilitate ignition [16] whereas short time ignition is favored by stable and homogeneous mixture “intimately and uniformly mixed” → this	

	sentence is not clear. Re-state this sentence. **MATERIAL AND METHODS** 79 done as for the rocket engine with helium ~~Helium~~ gas (He) injected into ~~in~~ the LOXdome **4. DISCUSSION** 462 this might be thought in terms of phase change number lessened 463 through the reduction of the heat flux and in terms of subcooling number lessened through 464 the reduction of the inlet subcooling enthalpy. → this sentence is not clear. Re-state this sentence.	
Optional/General comments		

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