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# Thematic Topics

“Where the Bottom-Up  
meets  
the Top-Down” ...

Brussels, 8 November 2018

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# Thematic Topics - Background

- **Thematic topics as new instrument to bring in new ideas contributing to CS2 HLO/complementing CS2 programme**
- **Features of thematic topics:**
  - Problem-oriented statements allowing research / technology routes to be selected and proposed by applicants
  - Allow for **retention of multiple projects against a topic**, where justified
  - Down-selecting on basis of clear contribution to CS2 HLO
  - Avoid duplication with H2020 calls in terms of both topic scope [narrower] and descriptions [more focused yet broader than CfP topics to date]



# CfP09 Overview – Thematic Topics

## List of Topics for Calls for Proposals (CFP09) – Part B

Identification Code	Title	Type of Action	Value (Funding in M€)
JTI-CS2-2018-CFP09-THT-03	Conceptual Design of a 19 passenger Commuter Aircraft with near zero emissions	RIA	0.75
JTI-CS2-2018-CFP09-THT-04	Design Optimisation providing optimum performance towards limiting aviation's contribution towards Global Warming	RIA	0.75
JTI-CS2-2018-CFP09-THT-05	Advanced High Bypass Ratio Low-Speed Composite Fan Design and Validation	RIA	2.00
JTI-CS2-2018-CFP09-THT-06	Research for the development of Particulate Matter (PM) regulations and guidelines	RIA	1.00



# JTI-CS2-2018-CFP09-THT-03: Conceptual Design of a 19-passenger Commuter Aircraft with near zero emissions

Type of action (RIA/IA/CSA):		RIA	
Programme Area:		N/A	
(CS2 JTP 2015) WP Ref.:		N/A	
Indicative Funding Topic Value (in k€):		750	
Topic Leader:	N/A	Type of Agreement:	N/A
Duration of the action (in Months):	36*	Indicative Start Date (at the earliest) <sup>123</sup> :	Q3 2019

*\*The JU considers that proposals requesting a contribution of 750k€ over a period of 36 months would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts and/or proposing different activity durations.*

## Short description

This thematic topic focuses on the design of a 19 passenger commuter aircraft based on alternative propulsion concepts (electric, hybrid/electric, fuel cells, etc.) targeting near-zero CO<sub>2</sub> emissions. Architectures may include (but are not limited to) concepts based on a jet-fuel powered (piston or turbine) generator providing electric power, recharging batteries and driving propellers or fans (distributed or not) through electrical engines, full electric aircraft, or propulsion using alternative energy systems and energy carriers like fuel cells, hydrogen, LNG etc. A full design loop is required, evaluating a range of design options, resulting in a mature conceptual design for the selected design. The design should be compliant with the new level 4 FAR23 / CS23 regulation, range and payload and operating parameters may be optimized. The expected project outcome would include a gap analysis and roadmap for performance critical technologies, the sizing and layout of system components, including fault tolerance scenarios, and quantified environmental performance gains, including a full LCA analysis of the proposed concepts.

# JTI-CS2-2018-CFP09-THT-04: Aircraft Design Optimisation providing optimum performance towards limiting aviation's contribution towards Global Warming

<b>Type of action (RIA/IA/CSA):</b>		RIA	
<b>Programme Area:</b>		N/A	
<b>(CS2 JTP 2015) WP Ref.:</b>		N/A	
<b>Indicative Funding Topic Value (in k€):</b>		750	
<b>Topic Leader:</b>	N/A	<b>Type of Agreement:</b>	N/A
<b>Duration of the action (in Months):</b>	36*	<b>Indicative Start Date (at the earliest)<sup>126</sup>:</b>	Q3 2019

*\*The JU considers that proposals requesting a contribution of 750k€ over a period of 36 months would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts and/or proposing different activity durations.*

## Short description

Mitigating aviation's contribution to climate change through its various emissions (including but not limited to CO<sub>2</sub>) will require new and increasingly more disruptive technologies. A reduced global warming impact could be achieved by relaxing the design constraints typically set, such as (but not limited to) aircraft design payload/range, cruise speed and cruise altitude. This topic asks for a multi-disciplinary optimization based on various *cost functions* such as operating cost, CO<sub>2</sub>, NO<sub>x</sub>, soot/particulate matter, as well as the likelihood of contrail induced cirrus formation as a function of the aircraft/engine design parameters (payload, range, cruise Mach number and altitude, etc.). An estimation of the mitigation potential by deviating from current typical operational parameters and current aircraft is expected. For a given design, an estimate of the sensitivity to operating parameters such as speed and altitude should be given. Selected projects should allow the coverage of two key air transport market segments: the passenger long-haul market segment as well as the short to medium range segment. Proposers should select design payload/range metrics that correspond with typical aircraft utilization for instance selecting route coverage up to a representative percentile of existing traffic flows. Proposers are free to select one, or both market segments and to define a relevant reference aircraft; and subsequently to present aircraft concepts that provide climate optimised performance. The CS2 Technology Evaluator can provide a validation opportunity within the CS2 environmental assessment.

# JTI-CS2-2018-CFP09-THT-05: Advanced High Bypass Ratio Low-Speed Composite Fan Design and Validation

Type of action (RIA/IA/CSA):		RIA	
Programme Area:		N/A	
(CS2 JTP 2015) WP Ref.:		N/A	
Indicative Funding Topic Value (in k€):		2000	
Topic Leader:	N/A	Type of Agreement:	N/A
Duration of the action (in Months):	48*	Indicative Start Date (at the earliest) <sup>135</sup> :	Q3 2019

*\*The JU considers that proposals requesting a contribution of 2000k€ over a period of 48 months would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts and/or proposing different activity durations.*

## Short description

The objectives of this topic would be to:

- Establish a state-of-the-art review in composite low-speed fan design methods and available experiments. Both at the level of composite fan manufacturing and design methods.
- Provide a specific design, able to highlight expected instability phenomena, suitable for experimental validation of complex multi-physical phenomena in view of establishing a European test case (experimental database) available under open access for other institutions to validate their design methods.
- Manufacture and test the low-speed composite fan model and establish an exhaustive experimental database as an open test case, with aerodynamic, aero-elastic and aero-acoustic data.



# JTI-CS2-2018-CFP09-THT-06: Research for the development of Particulate Matter (PM) regulations and guidelines

<b>Type of action (RIA/IA/CSA):</b>		RIA	
<b>Programme Area:</b>		N/A	
<b>(CS2 JTP 2015) WP Ref.:</b>		N/A	
<b>Indicative Funding Topic Value (in k€):</b>		1000	
<b>Topic Leader:</b>	N/A	<b>Type of Agreement:</b>	N/A
<b>Duration of the action (in Months):</b>	36*	<b>Indicative Start Date (at the earliest)<sup>129</sup>:</b>	Q3 2019

*\*The JU considers that proposals requesting a contribution of 1000k€ over a period of 36 months would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts and/or proposing different activity durations.*

## Short description

The objectives of this topic would be to:

- Bring together European state-of-the-art research efforts on understanding, predicting and modeling aviation particulate matter [PM] emissions in order to support a European roadmap for developing new NvPM technologies;
- Deepen the understanding of PM emitted by aircraft engines and provide a better understanding of their impact on health at and around airports and on the global atmosphere.
- Support the development of guidelines and methodologies for aircraft engine data and modeling capabilities related to PM, in view of ICAO CAEP 11 and beyond.
- Assist EASA and the European Commission (RTD, MOVE, CLIMA, ENVI) in developing NvPM regulations and guidelines.





# Applicant's Proposal Submission System

## Templates for submitting a valid proposal:

1. Part A *[Administrative Section (Coordinator ID, Legal LEAR etc.)]*
2. Part B.I *[Technical Section: 3 EVAL Criteria and technical and financial content linked to DoA]*

**NOTE: 30-page limitation for thematic topics in Part B.I**

3. Part B.II *[Admin Section: members of consortium (participants, operational capacity, etc.), (potential) ethics and security issues identified by the applicant]*
4. Part C *[ESIF Complementary Activities – OPTIONAL]*
5. Part D *[Declaration on the Participation of any Affiliated Entities to Private Members of CS2JU in this Proposal and Declaration(s) of Interests]*

*These templates (as published with this call) are available on the Participant Portal and in the Submission System.*



# 9<sup>th</sup> Call for Proposal at a glance

- |                                          |                  |
|------------------------------------------|------------------|
| ▪ Call Launch                            | 06 Nov 2018      |
| ▪ Call Closure                           | 06 Feb 2019      |
| ▪ Evaluation Phase                       | Feb - March 2019 |
| ▪ Q&A last publication*                  | 19 Dec 2018      |
| ▪ Technical sessions & Grant preparation | ~Q2 – Q3 2019    |
| ▪ Indicative Start date of activities    | ~Q3 2019**       |

*\*Questions received up until 5th December 2019, 17:00 (Brussels time) will be answered after analysis and published in the Q&A when appropriate. In total, three publications of Q/As are foreseen: 06/11, 22/11, and 19/12/2018 (estimated dates).*

*\*\*Indicative start date for Thematic Topics*

For Q&A: [Info-Call-CFP-2018-02@cleansky.eu](mailto:Info-Call-CFP-2018-02@cleansky.eu) (email address only active as from 06/11/2018).

Find out more about Call latest news and related Info Days: [www.cleansky.eu](http://www.cleansky.eu)



**NOTE:**

**THT breakout session in the afternoon is cancelled.**

**Any questions?**

**[Info-Call-CFP-2018-02@cleansky.eu](mailto:Info-Call-CFP-2018-02@cleansky.eu)**

Last deadline to submit your questions:  
5<sup>th</sup> December 2018, 17:00 (Brussels time)

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