



The 5th

Mission Idea Contest

Micro/Nano Satellites for Global Sustainable Development

5th Mission Idea Contest (MIC5) *Micro/Nano Satellite for Global Sustainable Development*

**Herman Steyn, Stellenbosch University
Chair of the Review Committee for MIC5**

Nov 19, 2018

MIC5 Overview

- Objective: Encourage innovative exploitation of micro/nano satellites to provide useful capabilities, services or data
- Eligibility: Any individual, group or company with suitable space systems expertise and an enthusiasm for Micro/Nano-satellites
- One Category : Mission Idea and Satellite Design
- Target satellite(s): satellite(s) weighing less than 50 kg
- Organizer: UNISEC-Global
- Important dates:
 - May 17, 2018: Abstract (5 pages max) Due
 - July 3, 2018: Notification of acceptance
 - Sept. 10, 2018: Final Paper (12 pages max) Due
 - Nov. 19, 2018: Final presentation during 6th UNISEC-Global Meeting, International Space University (ISU), Strasbourg, France.

<http://www.spacemic.net>

Background (1)

- The Mission Idea Contest was launched in 2010 to encourage innovative exploitation of micro/nano-satellites to provide useful capabilities, services.
- It provides aerospace engineers, college students, consultants, and anybody interested in space with opportunities to present their creative ideas and gain international attention.



MIC3 finalists and reviewers, Nov 19, 2014, Kitakyushu, Japan



MIC4 finalists and reviewers, Oct. 21, 2016, Varna, Bulgaria

Background(2)

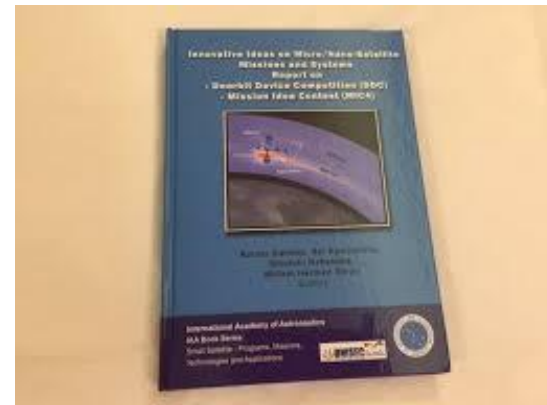
Four MICs and 3 Pre-Workshops were successfully organized in 2011-2017

- Results

- Potential utilizations of micro/nano-satellites were provided in the large number of submitted proposals
- Four books were published as IAA book series



MIC1-3



MIC4 & DDC

Process and Timeline

Application Submission : Deadline May 17, 2018

Submitted abstracts will be evaluated by review team



Notification of Finalist: July 3, 2018

Title of paper and finalist(s)' name and affiliation will be published on the website.



Final Paper Submission: September 10, 2018

Submitted final paper will be distributed to review team for evaluation



**Presentation in France on Nov. 19-21, 2018
at the 6th UNISEC-Global Meeting at ISU, France**

Comparison of MIC1,2,3,4 and Pre-MIC3,4,5

	MIC1	MIC2	PreMIC3	MIC3	PreMIC4	MIC4	PreMIC5
Satellite mass	< 15 kg	<50 kg	<50 kg	<50 kg	<50 kg	<50 kg	<50 kg
Number of satellites	2 or more (constellations only)	1 or more	1 or more	1 or more	1 or more	1 or more	1 or more
Category	1 Mission idea for nano-satellite constellation	2 Mission idea and satellite design Mission idea and business model	2 User Developer	1 Mission idea and satellite design	2 Mission proposer Resource provider	1 Mission idea and satellite design	1 Mission idea and satellite design to satisfy any of SDGs

A new Requirement for MIC5

Your proposal needs to satisfy any of the SDGs.



<https://sustainabledevelopment.un.org/sdgs>

Evaluation Criteria

Originality (50 points)	<ul style="list-style-type: none">-Novel mission concept not yet realized or proposed, or a new implementation of an existing capability or service (25)-Impact on society (25)
Feasibility (50 points)	<ul style="list-style-type: none">-Technical (20)-Programmatic (cost estimate, development schedule, infrastructure requirements) (15)-Operational (description of ground segment and communications architecture, e.g., planned use of existing infrastructure) (15)

Worldwide Network of MIC Regional Coordinator



<http://www.spacemic.net>

MIC5 reviewers

Chair: Herman Steyn, Stellenbosch University

- Rene Laufer, Baylor University
- Jordi Puig-Suari, Calpoly
- Shinichi Nakasuka, University of Tokyo
- Rainer Sandau, IAA
- Jerry Sellers, TSTI
- Sir Martin Sweeting, SSTL and Surrey Space Centre
- Chris Welch, ISU

REVIEW TEAM FOR THE BEST POSTER AWARD:

- Chair: Alim Rustem Aslan, Istanbul Technical University
- Mengu Cho, Kyushu Institute of Technology
- Fabio Santoni, Sapienza, University of Rome

=> Thank you to all participants and reviewers !

MIC5 Participation today

- **PreMIC5 workshop in Rome Italy Dec 2017:**
 - ❖ Team USA came first
 - ❖ Team Italy came second
- **Received 29 abstracts for MIC5 in May 2018:**
 - ❖ Selected 6 Finalists for today
 - ❖ Selected 5 Posters for today
- **2 Poster withdrawals**
- **Finalists and Posters are from 10 countries:**
 - ❖ Canada (2), Egypt, India, Japan (2), Malaysia, Mexico, Singapore, South Africa, Taiwan, USA

Function of MIC Coordinators

- Possible advice to potential applicants in their region and beyond
- Coordinating between potential applicants within their capacity
- Consultation with MIC Office about the most effective ways of applying for the MIC5 (e.g. organizing a regional seminar, using a space event in their region or disseminating information through an existing network)
- Possible approach to policy makers and business people in their region for the realization of the satellite mission ideas, with an implication of contributing to a better future of their society or country

Reasons for joining MIC

- 1) Good training opportunities as capacity building
- 2) Meaningful mission idea can be sought
- 3) MIC can function as catalyst which can make a difference in the real world, because the missions using micro/nano satellites can be affordable and technically achievable.
- 4) High visibility for your ideas and the potential for future collaboration and support

With the MIC, many people including students start to think what they need and what they can do to achieve their goal using micro/nano satellites. Through participation in the MIC, the requirements and the solutions are considered at a deeper level.