



IV IAA Latin American CubeSat Workshop

Preliminary Program - Brasilia Time Zone (GMT - 3)

3 August 2020	4 August 2020	5 August 2020	6 August 2020
09:00-09:15 Opening	09:00-09:30 Keynote 2	09:00-09:30 Keynote 4	09:00-09:30 Keynote 6
09:15-10:00 Keynote 1	09:30-10:00 Keynote 3	09:30-10:00 Keynote 5	09:30-10:00 Keynote 7
10:00-10:15 BREAK	10:00-10:15 BREAK	10:00-10:15 BREAK	10:00-10:15 BREAK
10:15-10:30 IAA-BR-20-01-01	10:15-10:30 Invited talk	10:15-10:30 IAA-BR-20-07-01	10:15-10:30 Invited talks
10:30-10:45 IAA-BR-20-01-02	10:30-10:45 IAA-BR-20-04-01	10:30-10:45 IAA-BR-20-07-02	10:30-12:00 Round-table
10:45-11:00 IAA-BR-20-01-03	10:45-11:00 IAA-BR-20-04-02	10:45-11:00 IAA-BR-20-07-03	
11:00-11:15 IAA-BR-20-01-04	11:00-11:15 IAA-BR-20-04-03	11:00-11:15 IAA-BR-20-07-04	
11:15-11:30 IAA-BR-20-02-01	11:15-11:30 IAA-BR-20-05-01	11:15-11:30 IAA-BR-20-07-05	
11:30-11:45 IAA-BR-20-02-02	11:30-11:45 IAA-BR-20-05-02	11:30-11:45 IAA-BR-20-07-06	
11:45-12:00 IAA-BR-20-02-03	11:45-12:00 IAA-BR-20-05-03	11:45-12:00 IAA-BR-20-08-01	
12:00-14:00 LUNCH	12:00-14:00 LUNCH	12:00-14:00 LUNCH	12:00-13:00 Closing
14:00-14:15 IAA-BR-20-03-01	14:00-14:15 IAA-BR-20-06-01	14:00-14:15 IAA-BR-20-08-02	13:00-13:15 Satellogic
14:15-14:30 IAA-BR-20-03-02	14:15-14:30 IAA-BR-20-06-02	14:15-14:30 IAA-BR-20-08-03	13:15-13:30 UChile
14:30-14:45 IAA-BR-20-03-03	14:30-14:45 IAA-BR-20-06-03	14:30-14:45 IAA-BR-20-08-04	13:30-13:45 EMSISTI
14:45-15:00 IAA-BR-20-03-04	14:45-15:00 IAA-BR-20-06-04	14:45-15:00 IAA-BR-20-08-05	13:45-14:00 ISI-SE Senai
15:00-15:15 BREAK	15:00-15:15 BREAK	15:00-15:15 BREAK	14:00-14:15 Orbital
15:15-17:00 Tutorial 1	15:15-17:00 Tutorial 2	15:15-15:30 IAA-BR-20-1P 1/2	14:15-14:30 CRON
		15:30-15:45 IAA-BR-20-1P 3/4	14:30-14:45 Fibraforte
		15:45-16:00 IAA-BR-20-1P 5/6	14:45-15:00 Cubesat.Market
		16:00-16:15 IAA-BR-20-1P 7/8	15:00-15:15 HORUSEYE
		16:15-17:00 CubeDesign	15:15-15:30 Opto S&D
			15:30-15:45 Zenit

Day 1 - Monday, 3 August 2020.

Opening Ceremony Dr. Jean-Michel Contant, IAA Secretary General Dr. Chantal Cappelletti, The University of Nottingham Dr. Antônio Fernando Bertachini de Almeida Prado, INPE Dr. Eduardo Augusto Bezerra, UFSC		
"Ongoing opportunities to fly to the Moon" Keynote Speaker: Dr. Mikhail Ovchinnikov Keynote Speaker and Dr. Sergey Trofimov (Chair Dr. Eduardo Bezerra) Director of the Attitude Control and Guidance Department - Keldysh Institute of Applied Mathematics, Russia		
SESSION 1 - ASSEMBLY, INTEGRATION, TEST AND VERIFICATION Chair Dr. Kleber Vieira de Paiva (UFSC)		
IAA-BR-20-01-01	FloripaSat-I: flight model qualification and validation tests	Gabriel Mariano Marcelino, Edemar Morsch Filho , Sara Vega-Martinez, Andre Mattos, Laio Oriel Seman, Leonardo Kessler Slongo and Eduardo Bezerra
IAA-BR-20-01-02	Preliminary design and simulation of a P-Pod for 1 or 3 U CubeSat	André Prialé
IAA-BR-20-01-03	Thermoplastic – Composite Honeycomb Panels Manufacturing Process For Application in CubeSat	Mateus Sant'Ana , Lais R Carvalho , João Vitor A Bigoloti and Manuel N D Barcelos Jr
IAA-BR-20-01-04	The use of trifilar pendulum method for CubeSat moment of inertia determination	Raphael Ugolini Santana , Marcus Vinicius Girão de Moraes, Lukas Lorenz de Andrade, Matheus Ribeiro de Brito Vieira and Renato Alves Borges
SESSION 2 - TECHNOLOGIES FOR OUTER SPACE STUDIES Chair Dr. Luis Zea (Universidad del Valle de Guatemala - UVG)		
IAA-BR-20-02-01	Miniaturized mid-infrared telescope as payload for cubesats	Eduardo Valadez-Campos , Eduardo Mendoza-Torres and Adriana DeRoa-Campoy
IAA-BR-20-02-02	Preliminary analysis of a CubeSat-class solar sail mission to Mars	Felipe de S. N. Coelho and He Huang
IAA-BR-20-02-03	CCRAD - Cubesat's COTS Radiation Detector	Silvio Manea, Juliano Moreira , Marcos Silva and Adilson Barbosa
SESSION 3 - EMBEDDED SYSTEMS DESIGN AND DEVELOPMENT Chair Dr. Fabian Luis Vargas (PUCRS)		
IAA-BR-20-03-01	Payload XL: a new fault-tolerant reconfigurable computing platform for CubeSats	Kleber Gouveia , Akkauam Santos, Laio Oriel Seman, Cezar Rigo and Eduardo Bezerra
IAA-BR-20-03-02	Agile methodology applied to System Engineering in the domain of CubeSat Project	Lidia Hissae Shibuya Sato , Jonas Bianchini Fulindi, Luis Eduardo V. Loures da Costa and Maria De Fátima Mattiello-Francisco
IAA-BR-20-03-03	Real Time Kinematics processing in embedded systems applied to a BalloonSat	Luiz Paulo da S. Damaceno , João M. S. Souza, Richard P. Mascarin, Daniel V. Magalhães, Glauco Caurin and Rafael Pastre
IAA-BR-20-03-04	MGL-4 picosatellite: an educational CubeSat developed by students of the Brazilian institute CEFET-MG	Raphael de Assis Silva, Julio Cesar Rocha de Oliveira Souza and Geraldo Magela Couto Oliveira
Tutorial 1 - "PocketQube and Cansat for Hands-On Space Projects, Space STEAM Education" Ulrich Norbistrath, Pedro Kaled, Leonardo Souza, Rafael Lobo, Victor Baptista and Mateus Six		

Day 2 - Tuesday, 4 August 2020.

"Brazilian Cubesat Missions" Keynote Speaker: Dr. Rodrigo Leonardi (Chair Dr. Otávio Durão) Brazilian Space Agency, Brazil		
"From public to private - spinning off with cubesats" Keynote Speaker: Dr. Otavio Cupertino Durão (Chair Dr. Rodrigo Leonardi) CRON, Brazil		
"BRISA: an RGB- and SWIR-band imaging CubeSat" Invited talk: Dr. Thyrso Villela (Chair Dr. Eduardo Bezerra) CGEE / INPE, Brazil		
SESSION 4 - MISSION APPLICATIONS Chair Cmd. Ronnie Nader Bello (Ecuadorian Space Agency)		
IAA-BR-20-04-01	Image system for microalgae culture monitoring in a cubesat	Samuel Pereira , André Luís Salomão, Gil Pinheiro, Lia Teixeira and Victor Hugo Ferreira Carneiro
IAA-BR-20-04-02	Detection of algae bloom using CubeSat images in the Brazillian Pantanal	Gustavo Nagel , Evlyn Novo, Daniel Maciel, Vitor Martins and Claudio Barbosa
IAA-BR-20-04-03	Development of a cubesat for total lightning flash detection from space: RAIOSAT mission - preliminary results	Antonio Cassiano Julio Filho , Auro Tikami, Marcus Vinicius Cisotto, Ângelo José Augusto Florentino, Moara de Oliveira and Antonio Ferreira de Brito
SESSION 5 - TELECOMMUNICATIONS, TRACKING AND COMMAND Chair Dr. Richard Demo Souza (UFSC)		
IAA-BR-20-05-01	DATASAT – Ground Station Network for Tracking, Telemetry and Command of Spacecrafts	Sergio da Silva Soares , Marcelo Essado, Gladys Pierry and Andreia Palucci
IAA-BR-20-05-02	Design and implementation of a ground station for tracking and monitoring LEO orbiting nanosatellites in the UHF and VHF bands, based on the USRP platform for university environment applications	Saray Lopez, Paola Vindigni , Joharlys Rodriguez, Ernesto Mejias and Kenny Wu
IAA-BR-20-05-03	CDA - A cubesat transponder listening the earth and chatting with amateur radio from space	Fernando Martins and Vanderlei Parro
SESSION 6 - CONSTELLATIONS AND FORMATION FLIGHTS Chair Dr. Geilson Loureiro (INPE)		
IAA-BR-20-06-01	A proposal of an anti-collision algorithm using aerodynamic maneuvers for cubesat constellations in LEOs	Jhonathan Murcia Piñeros , Antonio F. B. A. Prado, Walter dos Santos, Márcia Alvarenga dos Santos and Marcelo Lopes de Oliveira e Souza
IAA-BR-20-06-02	A study about the possible constellations of cubesats for Brazilian needs	Willer Santos, Liana Gonçalves, Pedro Cabral , Douglas Casale, Luís Eduardo Loures da Costa, Felipe Silva and Mateus Silva
IAA-BR-20-06-03	Formation flying and constellation of nanosatellites: An analysis of technological capabilities for development in Brazil	Jenny Carolina Asencio , Ricardo Mauricio Ferreira, Geilson Loureiro, Yuri Pereira and Felipe Oliveira Tavares
IAA-BR-20-06-04	Modeling the Behavior of Cubesats's Formation Flying System using the CoFI methodology	Ricardo Mauricio Ferreira , Ana M. Ambrosio, Ivan F. Barón and Geilson Loureiro
Tutorial 2 - "Using SatNOGS for cubesats ground station" Eng. Ramon Mayor Martins, IFSC, Brazil		

Day 3 - Wednesday, 5 August 2020.

"The legal status of the space debris under the international space law" Keynote Speaker: Dr. Tatiana Ribeiro Viana (Chair Dr. Marcia dos Santos) Legal adviser in International Space Law		
"Space Law Instruments for Long Term Sustainability of Outer Space Activities" Keynote Speaker: Dr. Marcia Alvarenga dos Santos (Chair Dr. Tatiana Viana) Senior Science & Technology Analyst at the National Institute for Space Research (INPE), Brazil		
SESSION 7 - ATTITUDE DETERMINATION AND CONTROL SYSTEMS Chair Dr. Valdemir Carrara (INPE)		
IAA-BR-20-07-01	A predictive magnetic PD controller to improve the precision for the attitude control of nanosatellites.	Berenice Rodríguez-Pedroza , Miguel O. Arias-Estrada and José E. Mendoza-Torres
IAA-BR-20-07-02	Magnetometer calibration maneuvering mode of SPORT cubesat	Valdemir Carrara
IAA-BR-20-07-03	Space capacity development in attitude determination and control system of a CubeSat	Victor Cabrera , Guillermo Arguello, Enrique Paiva and Diego Stalder
IAA-BR-20-07-04	Attitude sensors calibration and modeling for cubesats	Valdemir Carrara , Mateus Pereira and Jessica Azevedo
IAA-BR-20-07-05	Attitude Representation Methods of a CubeSat 3U	Thais Cardoso Franco and Gilvan Nascimento Filho
IAA-BR-20-07-06	The Monte Carlo Simulation for the ADCS of the SPORT Mission	Kátia Maier dos Santos , Willer Gomes dos Santos, Valdemir Carrara, Charles Swenson, Luis Eduardo Vergueiro Loures Costa and Lídia Hissae Shibuya Sato
SESSION 8 - ON-BOARD COMPUTER AND EPS Chair Dr. Livio Gratton (CONAE--UNSAM)		
IAA-BR-20-08-01	Energy harvesting for ultra-low power generation in cubesats using thermoelectricity	Thiago Martins , Jefferson Mika, Anderson Wedderhoff Spengler, Kleber Vieira de Paiva and Jorge Luiz Goes Oliveira
IAA-BR-20-08-02	QUETZAL-1 cubesat's command and data handling - design and development considerations	Emilio Miranda , Kuk Chung, Víctor Ayerdi and Luis Zea
IAA-BR-20-08-03	Energy Consumption Evaluation Aimed at Cubesat Software Development and Test	Júnior Bassani , Paulo Villa, Eduardo Bezerra and Fabian Vargas
IAA-BR-20-08-04	Mission plan optimization strategy to improve nanosatellite energy utilization and tasks QoS capabilities	Cezar Antônio Rigo , Laio Oriel Seman, Eduardo Camponogara, Edemar Morsch Filho, Leonardo Slongo and Eduardo Bezerra
IAA-BR-20-08-05	On-board flight software development for a Linux based OBC applied to the CONASAT project	Alex Alves , Samaherni Dias, Kurios Queiroz and Manoel Carvalho

Day 3 - Wednesday, 5 August 2020.

POSTER SESSION		
Chair Dr. Walter Abrahão dos Santos (INPE)		
IAA-BR-20-1P-01	Methodology for conceptual design phase assessment of traditional vs small satellite mission space segment concepts	Alejandro Lopez-Telgie and Walter Abrahão dos Santos
IAA-BR-20-1P-02	An approach for EEE parts procurement of control and data processing interface of a scientific microsatellite	Josemara Flausino, Thiago Silva , Bruna Henrique, Reni Wiliyanti and Marcelo Essado
IAA-BR-20-1P-03	Overview of past, present and future Brazilian small satellites missions	Leonardo Julio Souza, Rafael Lôbo, Victor Tadeu Baptista and Danilo Sakay
IAA-BR-20-1P-04	The perspective of Information Security in the communication systems of the ground segment of CubeSat missions	José Silva, Benjamim Monteiro , Francisco Vidal, Maria de Fátima Mattiello-Francisco, Giuliani Garbi and Carolyn Almeida
IAA-BR-20-1P-05	Cansat educational kit: Spaceduino	Pedro Gil, Michelly Guedes , João Nascimento and Credson Santos
IAA-BR-20-1P-06	Towards the success rate of cubesat missions improving operation concepts definitions	Benjamim Monteiro, José Silva, Maria de Fátima Mattiello-Francisco, Giuliani Garbi, Francisco Vidal and Manoel Carvalho
IAA-BR-20-1P-07	A low-cost and portable student ground station for tracking LEO satellites to promote capacity building in telecommunication area	Luis Miranda , Jorge Kurita and Diego Stalder
IAA-BR-20-1P-08	Operational Nanosatellite Simulator: would it be applicable to Cubesat missions?	Italo Rodrigues , Ana Ambrosio and Ronan Chagas

CubeDesign

Organizers: **Dr. Walter Abrahão dos Santos and Eng. Italo Pinto Rodrigues**

National Institute for Space Research (INPE), Brazil

List of Cubesat teams participating in this meeting:

Sirius UFABC - Guilherme Galhardo

CEFAST Aerospace - Raphael Assis

Gama CubeDesign - Isla Kalleney Marques Brandão

SpaceLab UFSC - Yan Azeredo

Minerva Sats - Jonas Degrave

Day 4 - Thursday, 6 August 2020.

<p align="center">"Innovative Wireless Power Devices Using micro-Thermoelectric Generators arrays" Keynote Speaker: Dr. Fernando Aguado Agelet University of Vigo, Spain (Chair Dr. Livio Gratton)</p>
<p align="center">"Future IAA Latin American Events - Local Study Groups" Keynote Speaker: Dr. Livio Gratton Comisión Nacional de Actividades Espaciales (CONAE) / Universidad Nacional de San Martín (UNSAM), Argentina (Chair Dr. Fernando Aguado)</p>
<p align="center">"Message from INPE's Director" Invited talk: Dr. Darcton Policarpo Damião National Institute for Space Research (INPE), Brazil</p>
<p align="center">"Message from AEB's President" Invited talk: Eng. Carlos Augusto Teixeira de Moura Brazilian Space Agency (AEB), Brazil</p>
<p align="center">Round-table - "Latin American Space Programs and the Cubesat Missions" Argentina - Livio Gratton (CONAE-UNSAM) Brazil - Rodrigo Leonardi (AEB), Chair Chile - Marcos Diaz (UCHile) Ecuador - Ronnie Nader (EXA) Guatemala - Luis Zea (UVG) Mexico - Carlos Duarte Muñoz (AEM) Paraguay - Alejandro Román (AEP) Peru - Juan Julca Yaya (CONIDA)</p>

Closing remarks from the Organizing Committee



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