

6th IAA Planetary Defense Conference

29th April – 3rd May, 2019
Washington DC area, USA

PROGRAM

 <p>JOHNS HOPKINS APPLIED PHYSICS LABORATORY</p>	
	
<p>AIRBUS</p>	
<p>LOCKHEED MARTIN</p> 	<p>NORTHROP GRUMMAN</p> 

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DAY 1		Monday 29 April 2019	
0800		REGISTRATION	
0850		OPENING REMARKS: Conference Organizers	
0900		WELCOME: Jason Kalirai, Civil Space Mission Area Executive, JHUAPL	
0905		WELCOME: Welcome - GSFC	
0910		KEYNOTE: The Honorable James Bridenstine, NASA Administrator	
0940		BREAK	
		SESSION 1: KEY DEVELOPMENTS SESSION ORGANIZERS: Detlef Koschny, Lindley Johnson	
1000	IAA-PDC-19-01-01	The United Nations And Planetary Defence: Key Developments Following UNISPACE+50 In 2018	Kofler, OOSA
1012	IAA-PDC-19-01-02	Planetary Defence India: Capability, future requirements, and Deflection Strategy for 2019 PDC	Singh, ISRO
1024	IAA-PDC-19-01-03	Planetary defence activities at the European Space Agency	Jehn, ESA
1036	IAA-PDC-19-01-04	Planetary Defense Program of the United States	Johnson, NASA
1048	IAA-PDC-19-01-05	Israel Space Agency & Planetary Defense	Harel Ben-Ami, ISA
		SESSION 2: ADVANCEMENTS IN NEO DISCOVERY & CHARACTERIZATION SESSION ORGANIZERS: Alan Harris (US), James (Gerbs) Bauer, Giovanni Valsecchi, Amy Mainzer	
1100	IAA-PDC-19-02-01	Recent Evolutions In ESA's NEO Coordination Centre System	Cano, Italy
1112	IAA-PDC-19-02-02	NEODYs services migration to ESA's NEO Coordination Centre: the effort and the improvements	Bernardi, Italy
1124	IAA-PDC-19-02-03	Building the Reference Small Body Population Model	Spahr, USA
1136	IAA-PDC-19-02-04	NEMO - a global near real-time fireball monitoring system	Drolshagen & Ott, Germany
1148	IAA-PDC-19-02-05	Observational Activities At ESA's NEO Coordination Centre	Micheli, Italy
1200	IAA-PDC-19-02-06	Impact Monitoring System of the Institute of Applied Astronomy of the Russian Academy of Sciences	Vavilov, Russia
1212	IAA-PDC-19-02-07	Update Of NEA Population And Current Survey Status	Harris, USA
1224	IAA-PDC-19-02-08	Catalina Sky Survey's Increased Discovery and Follow-up Capability	Christensen, USA
1236		LUNCH	
		SESSION 2 (CONTINUED)	
1400	IAA-PDC-19-02-10	Detection Of Small Impacting Asteroids With The ATLAS Telescope System	Denneau, USA
1412	IAA-PDC-19-02-11	The PAN-STARRS Data Archive — An Invaluable Resource Of Faint Near Earth Object Detections	Wainscoat, USA
1424	IAA-PDC-19-02-12	The Minor Planet Center Data Processing System	Holman, USA
1436	IAA-PDC-19-02-13	The Digest2 – NEO classification code	Veres, USA

1448	IAA-PDC-19-02-14	Is There A Preferred Date For A Possible Impact?	Tancredi Uruguay
1452	IAA-PDC-19-02-15	The Contribution Of Intermediate- And Long-Period Asteroids To The Overall Large-Body Impact Hazard	Steel, New Zealand
1504	IAA-PDC-19-02-16	The Earth-Impact Risk From Manx Comets	Ramanjooloo, USA
1516	BREAK		
1546	IAA-PDC-19-02-17	The Impact of Small Near-Earth Asteroid 2018 LA	Farnocchia, USA
1558	IAA-PDC-19-02-18	Identifying Short-Term Impactors With LSST	Naidu, USA
1610	IAA-PDC-19-02-19	Recent Results In Characterization Of Near-Earth Objects By The Neowise Mission	Masiero, USA
1622	IAA-PDC-19-02-20	Rapid Response Characterization of Potential NEO Impactors	Moskovitz, USA
1634	IAA-PDC-19-02-21	Arecibo Radar Observations Of Potentially Hazardous Asteroids	Taylor, USA
1646	IAA-PDC-19-02-22	The LCO Follow-up Network for NEOs	Lister, USA
1658	INJECT: PRESS RELEASE #1		
1730	ADJOURN DAY 1		
	<i>WELCOME RECEPTION (18:00 to 20:00, accompanying persons invited)</i>		

DAY 2	Tuesday 30 April 2019		
0820	INTRODUCTORY REMARKS		
	Session 2: Continued		
0830	IAA-PDC-19-02-23	The boulders on asteroid Ryugu: clues to the formation history of the top-shaped morphology	Cheng, China
0842	IAA-PDC-19-02-24	Faint NEO Observations Using The UH-2.2m Telescope	Fohring, USA
0854	IAA-PDC-19-02-25	Discovering and Studying Near Earth Objects with The Large Synoptic Survey Telescope (LSST)	Jones, USA
0906	IAA-PDC-19-02-26	The Near-Earth Object Camera: Overview	Mainzer, USA
0918	IAA-PDC-19-02-27	NEOCam Survey Cadence and Simulation	Grav, USA
0930	IAA-PDC-19-02-28	The NEOCam Science Data System	Cutri, USA
0942	IAA-PDC-19-02-29	Near-Earth Asteroids Monitoring for Hazard Assessments	Birlan, France
0954	IAA-PDC-19-02-30	Find_Orb: Orbit Determination and Analysis Software	Gray, USA
1006	BREAK		
	SESSION 3: APOPHIS SESSION ORGANIZERS: Marina Brozovic, Davide Farnocchia		
1036	IAA-PDC-19-03-01	Apophis 2029: Planetary Defense Opportunity Of The Decade	Binzel, USA
1048	IAA-PDC-19-03-02	Yarkovsky Acceleration Of (99942) Apophis	Tholen, USA

1100	IAA-PDC-19-03-03	Abrupt Alteration of Apophis' Spin State Redux	Scheeres, USA
1112	IAA-PDC-19-03-04	Using a Discrete Element Method to Investigate Seismic Response and Spin Change of 99942 Apophis During its 2029 Tidal Encounter with Earth	DeMartini, USA
1124	IAA-PDC-19-03-05	Trajectory Concepts For An Apophis Rendezvous Mission	Siddique, USA
1136	IAA-PDC-19-03-06	Asteroid Probe Experiment: Mission To Apophis	Plescia, USA
1148	IAA-PDC-19-03-07	AI3: The Asteroid In-Situ Investigation – 3 Ways to measure the interior of asteroid Apophis	Deller, Germany
1200	IAA-PDC-19-03-08	A Cubesat Mission to Asteroid Apophis Based on M-ARGO?	Koschny, Germany
1212	IAA-PDC-19-03-09	Science and Planetary Defense Priorities for Spacecraft Encounter Mission Concepts at (99942) Apophis During its 2029 Close Encounter with Earth	Bell, USA
1224	IAA-PDC-19-03-10	Six Very Close Potentially Hazardous Asteroid Flybys in the Late 2020s	Benner, USA
1236	LUNCH & SPEAKER - Mr Dennis Andrucyk, Deputy Associate Administrator, NASA		
1400	IAA-PDC-19-03-11	Lessons From The 2012 TC4 Campaign: First Global Planetary Defense Exercise	Reddy, USA
1415		INJECT #2	
1500		EXERCISE GROUPS DEVELOP RECOMMENDATIONS	
1600		BREAK	
1630		GROUPS FEEDBACK RECOMMENDATIONS	
1700		DECISION MAKER RESPONSES	
1730		ADJOURN DAY 2	
1730		POSTER RECEPTION (5:30 to 7:30 PM)	

DAY 3		Wednesday 1 May 2019	
0820		INTRODUCTORY REMARKS	
		SESSION 4: DEFLECTION & DISRUPTION MODELS & TESTS	
		SESSION ORGANIZERS: Patrick Michel, Tom Jones, Andy Cheng	
0830	IAA-PDC-19-04-01	Simulation Of The Dart Impact: Effects Of Impact Conditions And Target Properties	Bruck-Syal, USA
0848	IAA-PDC-19-04-02	Progress At Los Alamos National Laboratory (LANL) On The Inter-Agency Agreement On Planetary Defense	Plesko, USA
0906	IAA-PDC-19-04-03	Modeling the DART kinetic impactor and crater formation using realistic spacecraft shapes	Owen, USA
0924	IAA-PDC-19-04-04	Exploring Effects of Spacecraft Geometry and Target Structure on the DART Impact	Stickle, USA
0942	IAA-PDC-19-04-05	Understanding the Effect of Rubble Pile Structures on Asteroid Deflection	Graninger, USA
1000	IAA-PDC-19-04-06	Applications Of Dart Impact Simulation Results	Rainey, USA
1018	IAA-PDC-19-04-08	BREAK (30 minutes)	

1048	IAA-PDC-19-04-09	Numerical modelling of the DART impact and the importance of the Hera mission	Raducan, UK
1106	IAA-PDC-19-04-10	Impact simulations of the Double Asteroid Redirection Test (DART) - Results from the HERA Impact Simulation Group	Luther, Germany
1124	IAA-PDC-19-04-11	Deflection Of A Small Object Using A Kinetic Impactor	Remington, USA
1142	IAA-PDC-19-04-12	Size Scaling of Momentum Enhancement during Hypervelocity Impact of Porous and Consolidated Rock	Walker, USA
1200		LUNCH	
		SESSION 5: MITIGATION CAMPAIGN DESIGN SESSION ORGANIZERS: Nahum Melamed, Ian Carnelli, Marco Tantardini	
1330	IAA-PDC-19-05-01	Double Asteroid Redirection Test	Reed, USA
1342	IAA-PDC-19-05-02	Observations of Didymos in Support of AIDA/DART	Thomas, USA
1354	IAA-PDC-19-05-03	Proximity Observations by the Didymos Reconnaissance and Asteroid Camera for OpNav (DRACO)	Ernst, USA
1406	IAA-PDC-19-05-04	Double Asteroid Redirection Test: Technology and Engineering Challenges	Adams, Usa
1418	IAA-PDC-19-05-05	Renderer and Camera Emulator (RCE) for NASA'S Double Asteroid Redirection Test (DART)	Mehta, USA
1430	IAA-PDC-19-05-06	HERA: European component of the Asteroid Impact & Deflection Assessment (AIDA) mission to the binary asteroid Didymos	Michel, France
1442	IAA-PDC-19-05-07	Hera planned mission and payload operations at close proximity of the Didymos binary asteroid system after DART impact	Karatekin, Belgium
1454	IAA-PDC-19-05-08	Autonomous GNC and data fusion for the HERA mission	Graziano, Spain
1506	IAA-PDC-19-05-09	Asteroid Prospection Explorer (APEX) CubeSat for Hera mission	Kohout, Finland
1518	IAA-PDC-19-05-10	A Method for Defending Against Long-Period Comets	Eismont, Russia
1530		BREAK	
1600	IAA-PDC-19-05-11	Spacecraft Mission Design For The Mitigation Of The 2019 PDC Hypothetical Asteroid Threat	Barbee, USA
1612	IAA-PDC-19-05-12	Characterization and deflection missions of the fictitious asteroid 2019 PDC	Roa, USA
1624	IAA-PDC-19-05-13	See a New World in 17 Hours – First Results, Design and Mission of the Mobile Asteroid Surface Scout (Mascot) on Ryugu	Ho, Germany
1636	IAA-PDC-19-05-14	More Than One For All – The Synergy of Modularity and Re-Use in Nanolander Development in the Continuation of the Design of Mobile Asteroid Surface Scouts (MASCOT)	Lange, Germany
1648	IAA-PDC-19-05-15	NEOCAM Instrument Design and Performance Model	Trangsrud, USA
1700	IAA-PDC-19-05-16	System of Observation of Daytime Asteroids: trajectory and orbit design	Kovalenko, Russia
1712	IAA-PDC-19-05-17	BIRDY – Potential use of SmallSat for NEO reconnaissance and exploration	Hestroffer, France
1724		INJECT: PRESS RELEASE #3	
1800		ADJOURN DAY 3	
		PUBLIC EVENT	

DAY 4		Thursday 2 May 2019	
0820		INTRODUCTORY REMARKS	
		SESSION 6: IMPACT CONSEQUENCES & DISASTER RESPONSE SESSION ORGANIZERS: David Morrison, Mark Boslough, L.A. Lewis	
0830	IAA-PDC-19-06-01	Atmospheric Injections from Impacts of Kilometer Scale Asteroids	Robertson, USA
0842	IAA-PDC-19-06-02	Strength and Breakup Factors in Impact Scenario Risk Assessment	Wheeler, USA
0854	IAA-PDC-19-06-03	Next Steps in Impact Risk Assessment	Mathias, USA
0906	IAA-PDC-19-06-04	Asteroid to Airburst; Comparing Semi-analytical Airburst Models to Hydrocodes	McMullan, UK
0918	IAA-PDC-19-06-05	Modeling Thermal Radiation from Asteroid Airbursts	Stern, USA
0930	IAA-PDC-19-06-06	“Effective Height Of Burst” Revisited	Boslough, USA
0942	IAA-PDC-19-06-07	Airburst Detection Capability of the Infrasound Segment of the CTBTO International Monitoring System	Brown, Canada
0954	IAA-PDC-19-06-08	Recent Glass Strewn Field From Fireball Over Chile	Schultz, USA
1006	IAA-PDC-19-06-09	GPU Parallel Algorithm for Hypersonic Flow Around Asteroid	Bai, China
1018	IAA-PDC-19-06-10	The Impact Effects Knowledgebase: Fast Prediction of the Consequences of NEO Collisions with Earth	Luther, Germany
1030		BREAK	
1100	IAA-PDC-19-06-11	Simulation of PDC 2019 Asteroid Land and Ocean Impacts: Consequences on US Major Cities for Disaster Response and Management	Ezzedine, USA
1112	IAA-PDC-19-06-12	Hazard Estimate Of 2019 PDC Impact Scenario	Dang, Ghina
1124	IAA-PDC-19-06-13	Coordinated Disaster Preparedness And Response For Near-Earth Object (NEO) Threats – Experiences From The "United Nations Platform For Space-Based Information For Disaster Management And Emergency Response (UN-SPIDER)	Ravan, OOSA/UN-SPIDER
1136	IAA-PDC-19-06-14	Intelligent Surge: Improving Healthcare Preparedness In Times Of Disaster	Loschen, USA
1148	IAA-PDC-19-06-15	Role of Space Technology for Disaster Management: Agenda and Action Plan	Jagannatha, India
1200		LUNCH & SPEAKERS <ul style="list-style-type: none"> • Dr Aaron Miles, National Security Division, Office of Science and Technology Policy, Executive Office of the President • Mr Damon Penn, Assistant Administrator, Emergency Response Directorate, Federal Emergency Management Agency, Department of Homeland Security 	

		SESSION 7: ISSUES AFFECTING DECISION TO ACT	
		SESSION ORGANIZERS: Mariella Graziano, Victoria Friedensen	
1330	IAA-PDC-19-07-01	Legality of Planetary Defense Missions and Considerations for International Decision Bodies	Marboe, Austria
1345	IAA-PDC-19-07-02	Sustainability of International Planetary Defense Decision-Making: What Can Go Wrong Even if We Deflect an Asteroid?	Bohacek, Czech Republic
1400	IAA-PDC-19-07-03	International Liability and Responsibility Issues in Planetary Defense	Soucek, The Netherlands
1415	IAA-PDC-19-07-04	Responsibility System on the Defense of Near-Earth Objects	Wang, China
1430	IAA-PDC-19-07-05	The U.S. National Near-Earth Object Preparedness Strategy and Action Plan: Summary of Progress to Date	Friedensen, USA
1445	IAA-PDC-19-07-07	Accounting For Violent Conflict Risk In Planetary Defense Decisions	Baum, USA
1500		BREAK	
		SESSION 8: COMMUNICATIONS TO THE PUBLIC	
		SESSION ORGANIZERS: Alex Karl, Jan Osburg	
1530	IAA-PDC-19-08-01	A Suggested Communications Standard For Asteroid Impact Alerts	Landis, USA
1545	IAA-PDC-19-08-02	An analysis of IAWN communication audiences and recommendations to increase publicity among the NEO community and the general public	Karl & Wolfson, Belgium
1600	IAA-PDC-19-08-03	Planetary Defense In The Classroom, A Social Science Perspective	Haddaji, USA
1615	IAA-PDC-19-08-04	Planetary Defense Mitigation Gateway: One-Stop Gateway for Pertinent PD- Related Contents	Shams, USA
1630		Poster Presentations	
1645		INJECT #4	
1730		ADJOURN DAY 4	
		CONFERENCE BANQUET	

DAY 5		Friday 3 May 2019
0850		INTRODUCTORY REMARKS
0900		PANEL SESSION: What journalists want to know about Planetary Defense. MODERATOR: Linda Billings PANELISTS: Dan Vergano, BuzzFeed Melissa Nord, CBS Channel 9 Sarah Kaplan, Washington Post
1000		BREAK
1015		UPDATE #5
1045		GROUP DISCUSSION & RECOMMENDATIONS
1145		DECISION MAKER DISCUSSION & DECISIONS
1230		LUNCH & SPEAKER
1400		DISCUSSION: LESSONS LEARNED AND RECOMMENDATIONS FROM PDC 2019
1500		CONFERENCE ENDS



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POSTER PAPERS PDC 2019

SESSION 1

Bohacek	Czech Republic	IAA-PDC-19-01-P01	International Consequences of Planetary Defense Mission Failure: Parametric Analysis of Scenarios by Mandate and Deflection Method
Schmidt	Czech Republic	IAA-PDC-19-01-P02	The Role of Large Technical Systems in Establishing Global Planetary Defense Regime
Svec	Czech Republic	IAA-PDC-19-01-P03	Near-Earth Object Threat Mitigation in the Context of the Sendai Framework for Disaster Risk Reduction
Svec	Czech Republic	IAA-PDC-19-01-P04	Unilateral Planetary Defense Mission: An International Law Perspective

SESSION 2

Adams	USA	IAA-PDC-19-02-P01	Analysis of Alternatives Study for Near Earth Object Detection, Tracking and Characterization
Batista Negri	Brazil	IAA-PDC-19-02-P02	Analysis of Jupiter's Third-Body Perturbation Effects on Optimal Asteroid Deflection Maneuvers
Bauer	USA	IAA-PDC-19-02-P03	Surveying the Long-Period Comet Hazard
Betts	USA	IAA-PDC-19-02-P04	Shoemaker NEO Grants: Providing Opportunities to Upgrade NEO Observatories
Bolin	USA	IAA-PDC-19-02-P05	Impact Probability Evolution of Virtual Impacting Asteroids Observed by the Large Synoptic Survey Telescope
Carey	USA	IAA-PDC-19-02-P06	Methodology for Photometric Calibration of Infrared Observations of Solar System Objects
Chambers	USA	IAA-PDC-19-02-P07	The Second Pan-STARRS Telescope and Camera and the Performance of the Full Pan-STARRS System

Chastel	USA	IAA-PDC-19-02-P08	The Pan-STARRS Moving Objects Processing System: Six Years of Improvements through Reality Checks
Chesley	USA	IAA-PDC-19-02-P09	The Orbital Properties of Earth Impactors
Desmars	France	IAA-PDC-19-02-P11	DynAstVO: Near-Earth Asteroids Orbits and Close Approaches Databases
Dotson	USA	IAA-PDC-19-02-P12	Bayesian Inference of Physical Properties for Impact Scenarios
Eggl	USA	IAA-PDC-19-02-P13	The Large Synoptic Survey Telescope's Moving Object Processing System
Elvis	USA	IAA-PDC-19-02-P14	Big Telescopes Can Largely Solve the Albedo Question for 2019 PDC
Furfaro	USA	IAA-PDC-19-02-P15	Development of An Intelligent Target Prioritization System for NEOCam Ground-Based Follow-Up
Hartzell	USA	IAA-PDC-19-02-P16	In-Situ Regolith Cohesion Quantification Via Electrostatic Dust Lofting
Ieva	Italy	IAA-PDC-19-02-P17	Physical Characterization of the Carbonaceous NEO Population
Ivantsov	Turkey	IAA-PDC-19-02-P18	Statistics of the Close Encounters Predictions by the World Services
Kim	Korea	IAA-PDC-19-02-P19	Characterization of Earth Close Approaching Phase Using the OWL-Net Telescopes
Knight	USA	IAA-PDC-19-02-P20	What Hazards Lurk in the Soho/Stereo Datasets?
Kramer	USA	IAA-PDC-19-02-P21	Modeling the Photometric Behavior of the Near-Earth Comet Population
Masago Mescolotti	Brazil	IAA-PDC-19-02-P22	Effects of the Errors in the Physical Parameters to Observe the Triple Asteroid 2001SN263
Masci	USA		MODE: a new Moving Object Discovery Engine
Nath	USA	IAA-PDC-19-02-P23	Using Machine Learning to Predict Risk Index of Asteroid Collision
Neff	USA	IAA-PDC-19-02-P24	Near Earth Object Detection using Artificial Intelligence
Nugent	USA	IAA-PDC-19-02-P25	NEAT-R: Near-Earth Asteroid Tracking Reprocessing
Ott	Germany	IAA-PDC-19-02-P26	Infrasound for Global Fireball Monitoring
Shao	USA	IAA-PDC-19-02-P27	Search for NEOs Using a Farm of Small Synthetic Tracking Telescopes
Silva Neto	Brazil	IAA-PDC-19-02-P28	Using the Extended Kalman Filter to Navigate Around a Double Asteroid
Sonnett	USA	IAA-PDC-19-02-P29	The Effects of Binary Asteroids on Hazard Assessment and Mitigation
Spoto	France	IAA-PDC-19-02-P30	The Impact of the Gaia Mission on Asteroid Astrometry
Steel	New Zealand	IAA-PDC-19-02-P31	On the Likelihood of a Neptune-Crossing Object Being Directly Diverted onto a Path with Perihelion In the Inner Solar System
Surace	USA	IAA-PDC-19-02-P32	An Image Simulator for NEOCam

Vavilov	Russia	IAA-PDC-19-02-P33	A Robust Linear Method for Impact Probability Calculation
Virkki	USA	IAA-PDC-19-02-P34	The Capabilities and Future of the Arecibo Planetary Radar System In 2019-2023
Weryk	USA	IAA-PDC-19-02-P35	Near-Earth Objects in the Isolated Tracklet File
Wittholt	Germany	IAA-PDC-19-02-P36	New Impact Risk Scale for Potentially Hazardous Objects (PHO)
Stecklum	Germany	IAA-PDC-19-02-P37	TAUKAM's first look at NEOs

SESSION 3

Barnouin	USA	IAA-PDC-19-03-P01	Exploring Rotational, Surface and Interior Changes of the NEA/PHA Apophis During Its 2029 Close Encounter with the Earth
Boley	Canada	IAA-PDC-19-03-P02	The Beacon Mission
Brozovic	USA	IAA-PDC-19-03-P03	Goldstone and Arecibo Radar Observations of (99942) Apophis in 2021 and 2029
Earle	USA	IAA-PDC-19-03-P04	Apophis Seismology: The 'Smart Marbles' Concept
Gianolio	The Netherlands	IAA-PDC-19-03-P05	Precise Earth Impact Risk Assessment of PHOs via a Multi-Flyby Mission
Schmerr	USA	IAA-PDC-19-03-P06	The Asteroid Probe Experiment (APEX): Seismology At 99942 Apophis
Yaeji	USA	IAA-PDC-19-03-P07	Assessment of Resurfacing Process on Apophis During the 2029 Earth Flyby

SESSION 4

Braroo	USA	IAA-PDC-19-04-P01	Deflection of Potentially Hazardous Asteroids
Chen	China	IAA-PDC-19-04-P02	Research on Asteroid Dynamic Behavior and Deflecting Defense Effect by Space-Based Laser-Driven
Dongyue	China	IAA-PDC-19-04-P03	Terminal Guidance Design and Simulation for Asteroid Guided Collision Missions
Greenstreet	USA	IAA-PDC-19-04-P04	Required Deflection Impulses as a Function of Time Before Impact for Earth-Impacting Asteroids
Howley	USA	IAA-PDC-19-04-P05	The Small Carry-On Impactor from the Hayabusa2 Mission: Models of Jet Formation, Penetration and Crater Creation
King	USA	IAA-PDC-19-04-P06	Gravitational Dynamics of Fragments in Nuclear Disruption Scenarios
Krobka	Russia	IAA-PDC-19-04-P07	Guided Asteroids against Hazardous Asteroids: Innovations from Russia
Managan	USA	IAA-PDC-19-04-P08	Reradiation of Energy Deposited by X-Rays
Melamed	USA	IAA-PDC-19-04-P09	Asteroid Interception at Atmospheric Entry
Sloane	USA	IAA-PDC-19-04-P10	Pulsed Laser Ablation Propulsion of Asteroids: Time-Of-Flight Mass Spectrometry and Direct Force Measurements
Sorli	USA	IAA-PDC-19-04-P11	Hydrodynamic Modeling of the Deep Impact Mission into Comet Tempel 1
Venditti	USA	IAA-PDC-19-04-P12	Potentially Hazardous Asteroid Impact Mitigation Strategy using Tethers
Yang	China	IAA-PDC-19-04-P13	Hybrid Constellation Design for Debris Removal and Asteroid Defense
Zhou	China	IAA-PDC-19-04-P14	Momentum Transfer Measurements of Hypervelocity Impacts Up to 8km/s by using Ballistic Pendulum

SESSION 5

Atchison	USA	IAA-PDC-19-05-P01	NASA's Double Asteroid Redirection Test (DART) Phase C Trajectory Analysis
Cheng	USA	IAA-PDC-19-05-P02	DART: First Test of Asteroid Deflection
Daly	USA	IAA-PDC-19-05-P03	Shape Modeling Testing and Validation for the Double Asteroid Redirection Test (DART)
Eggl	USA	IAA-PDC-19-05-P04	Post Deflection Impact Risk Analysis of the Double Asteroid Redirection Test (DART)
Gordo	Portugal	IAA-PDC-19-05-P05	Helena – Hera Lidar Engineering Model Altimeter Design
Grimm	Germany	IAA-PDC-19-05-P06	Catching a Ride on the Peregrine Falcon – Mascot's Race to Ryugu with Hayabusa2 in 6 Years, 4 Months, and 48 Hours
Grundmann	Germany	IAA-PDC-19-05-P07	Responsive Exploration and Asteroid Characterization Through Integrated Solar Sail and Lander Development Using Small Spacecraft Technologies
Herique	France	IAA-PDC-19-05-P08	Radar Package for a Direct Observation of the Asteroid's Structure from Deep Interior to Regolith: Review of Objectives and Status of the Instruments
Karatekin	Belgium	IAA-PDC-19-05-P09	Hera Planned Mission and Payload Operations at Close Proximity of the Didymos Binary Asteroid System After DART Impact
Krus	Czech Republic	IAA-PDC-19-05-P10	High Power Lasers as a Tool for Meteorite Composition Studies with an Impact on the Asteroid Deflection
Kueppers	Spain	IAA-PDC-19-05-P11	The Hera Mission in the Context of ESA's Proposed Space Safety and Security Program
Melamed	USA	IAA-PDC-19-05-P12	Mitigation of Imminent Comet Impact
Naidu	USA	IAA-PDC-19-05-P13	Physical Characterization of Binary Asteroid 65803 Didymos and Radar Detection of Its Satellite Deflection from the DART Mission Impact In 2022
Seefeldt	Germany	IAA-PDC-19-05-P14	Sailing Towards Unfolding Events – DLR Thin Membrane Deployment Technologies for Solar Sails and Large Space Structures in Responsive Planetary Defense Applications

Shugarov	Russia	IAA-PDC-19-05-P15	System of Observation of Daytime Asteroids (SODA)
Sproewitz	Germany	IAA-PDC-19-05-P16	A Veil of Power for Planetary Defense – The DLR GOSOLAR Flexible Thinfilm Photovoltaics Gossamer Solar Array Concept in Payload Transfer and Asteroid Mitigation Missions
Wittholt	Germany	IAA-PDC-19-05-P17	BASE: A Proposal of Nanosat Asteroid Mission

SESSION 6

Aftosmis	USA	IAA-PDC-19-06-P01	A Ground Footprint Eccentricity Model for Asteroid Airbursts
Boslough	USA	IAA-PDC-19-06-P02	Tunguska and the June 2019 Beta Taurid Observational Opportunity
Brown	Canada	IAA-PDC-19-06-P03	Kinetic Damage from Meteorites
Li	China	IAA-PDC-19-06-P04	Calculation of Radiative Heating Flux Over a Meteoroid Entering the Earth Atmosphere
Shi	China	IAA-PDC-19-06-P05	Aerodynamic Heating/Ablation/Conduction Calculation of Iron Asteroid Entering the Earth's Atmosphere at Hypervelocity
Stern	USA	IAA-PDC-19-06-P06	Modeling Thermal Radiation from Asteroid Airbursts

SESSION 7

Janzwood	Canada	IAA-PDC-19-07-P01	Research Prioritization at the Planetary Defense Coordination Office
Rumpf	USA	IAA-PDC-19-07-P02	Risk Estimation of Threatening Asteroids
Shrivastava	India	IAA-PDC-19-07-P03	Scientific Correlation of Occurrence Tsunami-2004 with Astronomical Movement of Apophis (99942) and Highest Probability of Re-Occurrence of Tsunami In 2029, The Postulates and Disaster Preparedness Planning
Ross	UK	IAA-PDC-19-07-P04	High Impact Low Probability Risk: Risk Management and Risk Governance of Potentially Hazardous Near Earth Objects
Marboe	Austria	IAA-PDC-19-07-P05	Legal Questions Of The PDC2017 Scenario Case Study

SESSION 8

Betts	USA	IAA-PDC-19-08-P01	Planetary Society NEO Public Education from Posters to Stickers to Classes
Marchis	USA	IAA-PDC-19-08-P02	The Contribution of the Unistellar EVSCOPE Network to Planetary Defense
Osburg	USA	IAA-PDC-19-08-P03	Using “Wireless Emergency Alerts” for Planetary Defense Notifications
Prado	France	IAA-PDC-19-08-P04	CHRONOFLASH, A Simple Device for Asteroid Occultations Timing

	
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 UNITED NATIONS Office for Outer Space Affairs	