

2015 IAA Planetary Defense Conference:
Assessing Impact Risk & Managing Response

DRAFT PROGRAM
February 18, 2015

DAY 1	April 13, 2015	
0800	REGISTRATION	
0900	WELCOMING REMARKS	
0915	KEYNOTE: 15.02.2013 Chelyabinsk. Are we ready for a recurrence?	O. Atkov
0945	BREAK	
	SESSION 1: INTERNATIONAL PROGRAMS & ACTIVITIES Session Chairs: Detlef Koschny, Lindley Johnson	
1000	The Near-Earth Object Segment Of ESA's SSA Programme	G. Drolshagen
1020	Astronomical Aspects Of Building A System For Detecting And Monitoring Hazardous Space Objects	B. Shustov
1040	The Achievements Of The NEOShield Project And The Promise Of NEOShield-2	A. Harris (DLR), A. Falke (Airbus DS)
1100	Recent Enhancements To The NEO Observations Program: Implications For Planetary Defense	L. Johnson
1120	Paper	M. Yoshikawa
1140	Paper	S. Camacho (Invited)
1200	INJECT 1: HYPOTHETICAL THREAT	
1215	LUNCH	
	SESSION 2: DISCOVERY, TRACKING, CHARACTERIZATION Session Chairs: Alan Harris (US), Alan Harris (DLR), Line Drube	
1345	PAN-STARRS Search For Near Earth Objects	R. Wainscoat
1400	Design Characteristics Of An Optimized Ground Based NEO Survey Telescope	S. Larson
1415	ATLAS – Warning For Impending Impact	J. Tonry
1430	Sentinel Mission For Planetary Defense	H. Reitsema
1445	Building On The NEOWISE Legacy With NEOCAM, The Near-Earth Object Camera	A. Mainzer
1500	Poster Papers	
1515	BREAK	
1545	NEO Follow-Up, Recovery And Preccovery Campaigns At The ESA NEO Coordination Centre	M. Micheli
1600	The First Year Of The NEOWISE Restarted Mission	J. Bauer
1615	Asteroids Coupled Dynamics Analysis By Means Of Accurate Mass Distribution And Perturbations Modeling	F. Ferrari
1630	The Linear Method For Impact Probability Estimation Using A Curvilinear Coordinate System	D. Vavilov
1645	Poster Papers	
1700	BREAK	
1715	PANEL SESSION: RESPONSE TO HYPOTHETICAL THREAT	
1800	ADJOURN DAY 1	
	WELCOME RECEPTION	

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DAY 2	April 14, 2015	
0855	INTRODUCTORY REMARKS	
	SESSION 2: DISCOVERY, TRACKING, CHARACTERIZATION (Continued) Session Chairs: Line Drube, Alan Harris (US), Alan Harris (DLR)	
0900	Thermal And Spin Properties Of Near-Earth Objects: Constraints From Next-Generation Infrared Surveys	T. Statler
0915	The Population Of Small NEAs	A. Harris (US)
0930	An Automated System For Short-Term Impact Warning	S. Chesley
0945	Target-Of-Opportunity Characterization Of Sub-200 Meter Near-Earth Asteroids	W. Ryan
1000	Physical Characterization Of Chelyabinsk-Sized (~20 Meter) Near-Earth Asteroids: Implications For Impact Hazard, Meteorite Source Bodies, And Human Exploration	V. Reddy
1015	New NEODYS Graphic Tool For Orbit Visualization	F. Bernardi
1030	Break	
1100	High-Resolution Radar Imaging Of Potentially Hazardous Near-Earth Asteroids	M. Busch
1115	Constraining Physical Properties Using Meteor Observations	R. Weryk
1130	Characterizing The Near-Earth Asteroid Population In The Framework Of The NEOShield Project	D. Perna
1145	Poster Papers	
1200	INJECT 2: HYPOTHETICAL THREAT	
1215	LUNCH	
	SESSION 3: DEFLECTION AND DISRUPTION TECHNIQUES Session Chairs: Brent Barbee, Bong Wie, Paul Miller	
1330	Asteroid Characterization Priorities For Planetary Defense	P. Miller
1345	Characterizing The Effect Of Asteroid Topography On Hazardous Asteroid Kinetic Impact Deflection Scenarios	D. Sheeres
1400	Influence Of Porosity On Impulsive Asteroid Mitigation Scenarios	E. Herbold
1415	Stand-Off Nuclear Deflection: The Importance Of Shape, Composition And Spectrum	K. Howley
1430	When An Impactor Is Not Enough: The Realistic Nuclear Option For Standoff Deflection	D. Dearborn
1445	Optimizing Surface Ablation Deflection In The Presence Of Realistic Asteroid Topography And Rotation	J. McMahon
1500	BREAK	
1530	Directed Energy Planetary Defense Mission	P. Lubin
1545	A Comparison Of Kinetic Impactor And Nuclear Deflection For Two Scenarios: Bennu And The 2015 PDC Scenario	J. Owen
1600	Suborbital Asteroid Intercept And Fragmentation For Very Short Warning Time Scenarios	R. Hupp
1615	A New Terminal Guidance Sensor System For Asteroid Intercept Or Rendezvous Missions	J. Lyzhoft
1630	QBOLT - Directed Energy System Concepts For Asteroid Threat Mitigation	M. Thangavelu

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1645	BREAK	
1700	PANEL SESSION: RESPONSE TO HYPOTHETICAL THREAT	
1800	ADJOURN DAY 2	
1800	REFRESHMENTS AND POSTER REVIEW	

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DAY 3	April 15, 2015	
0850	INTRODUCTORY REMARKS	
	SESSION 3: CONTINUED	
0900	ASTEROID DEFENCE: COMPARISON OF Kinetic-Impact And Nuclear Stand-Off Schemes	G. Gisler
0915	Disruption Limits Of Kinetic-Impactor Mitigation	M. Bruck Syal
0930	Los Alamos RAGE Simulations Of The HAIV Mission Concept	R. Weaver
0945	GPU-Accelerated Computational Tool Development For Studying The Effectiveness Of Nuclear Subsurface Explosions	B. Zimmerman
1000	BREAK	
	SESSION 4: MISSION AND CAMPAIGN DESIGN AND EXECUTION Session Chairs: Ian Carnelli, Patrick Michel, Marco Tantardini	
1030	Asteroid Impact & Deflection Assessment Mission: Science Return And Mitigation Relevance	P. Michel
1045	Asteroid Impact & Deflection Assessment: DART	A. Cheng
1100	Asteroid Impact Mission: A Unique Opportunity To Demonstrate Planetary Defense While Testing Technologies For Future Missions And Performing Asteroid Scientific Investigations	I. Carnelli
1115	Aida Double Asteroid Redirection Test (Dart) Mission: Modeling Expected Outcomes	A. Stickle/O. Barnouin
1130	NEOShield: The Fate Of Ejecta From A Kinetic Impactor Strike On A Near-Earth Object	S. Schwartz
1145	A Direct Observation The Asteroid's Structure From Deep Interior To Regolith: Why And How Do It?	A. Herique
1200	Using Mission Images To Study Evidence Of Block Motion On Asteroids: Implications For Seismology Of Small Bodies	J. Noviello
1215	Relevance Of PHILAE And MASCOT In-Situ Investigations For Planetary Defense	S. Ulamec
1230	INJECT 3: HYPOTHETICAL THREAT	
1245	LUNCH	
	SESSION 4: CONTINUED	
1400	Poster Papers	
1415	Investigations Of Short Warning Time Response Options For Hazardous Near-Earth Objects	B. Seery
1430	An Innovative Solution To NASA's NEO Impact Threat Mitigation Grand Challenge And Flight Validation Mission Architecture Development	B. Wie
1445	Enhanced Gravity Tractor Technique For Planetary Defense	D. Mazanek
1500	Mission Design For A Gravity Tractor Demonstration Mission	N. Faber
1515	Metrics For Evaluating Effective Disruption Of Hazardous Near-Earth Objects	B. Kaplinger
1530	BREAK	
1555	NEOShield: Post Mitigation Impact Risk Assessment For Asteroid Deflection Demonstration Missions	S. Eggli
1610	Vision-Based Navigation System For Cost-Efficient Mitigation Missions	J. Gill

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1625	NEO Threat Mitigation Software Tools Within the NEOShield Project and Application to 2015 PDC	J.L. Cano
1640	From Sail To Soil – Getting Sailcraft Out Of The Harbor On A Visit To One Of Earth’s Nearest Neighbors	T. Grundmann
1650	Mission Analysis For The Ion Beam Deflection Of Fictitious Asteroid 2015 PDC	C. Bombardelli
1700	Impact Risk Assessment And Planetary Defense Mission Planning For Asteroid 2015 PDC	G. Vardaxis
1710	BREAK	
1720	PANEL SESSION: RESPONSE TO HYPOTHETICAL THREAT	
1800	ADJOURN DAY 3	
	PUBLIC EVENT	

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DAY 4	April 16, 2015	
0850	INTRODUCTORY REMARKS	
	SESSION 4: CONTINUED	
0900	Robotic missions to small bodies and their potential contributions to human exploration and planetary defense	P. Abell
0915	NASA's asteroid redirect mission leverages enhanced PHA detection and demonstrates potential mitigation options	M. Gates
0930	The Mission Accessibility of Near-Earth Asteroids	B. Barbee
0945	BILLIARDS: A Demonstration Mission for Hundred-Meter Class Near Earth Asteroid Disruption	M. Marcus
1000	Mothership – Affordable Exploration Of Planetary Bodies Through Individual Nano-Sats And Swarms	S. Ernst
1015	Poster Papers	
1030	BREAK	
	SESSION 5: CONSEQUENCES OF IMPACTS Session Chairs: Mark Boslough, Barbara Jennings, Alan Harris (US)	
1100	New Risk Assessment And Early Warning Of Airbursts From Small NEOs	M. Boslough
1115	Break-Up Modeling And Trajectory Simulation Under Uncertainty For Asteroids	P. Mehta
1130	Analysis Of The Airburst Phenomenon From An Aerothermodynamic Point Of View: The Case Of Chelyabinsk	N. Minster
1145	Sensitivity Of Ground Damage Predictions To Meteoroid Breakup Modeling Assumptions	D. Methias
1200	Wave Generation, Wave Propagation, And Onshore Consequences Of The 2015 PDC Asteroid-Impact Scenario	S. Ezzedine
1215	Consequences Of The Impact Of A 300-M-Diameter Asteroid	V. Svetsov
1230	INJECT 4: HYPOTHETICAL THREAT	
1245	LUNCH	
	SESSION 6: DISASTER & MITIGATION PLANNING & PUBLIC EDUCATION Session Chairs: Nahum Melamed, Dave Baiocchi, L.A. Lewis, Victoria Friedensen	
1400	Recent Activities of the US Federal Emergency Management Agency Concerning Response to Near Earth Object Impacts	L. Lewis
1415	NEOShield Public Outreach / New Media activities	R. Hermesen
1430	Understanding Risk Perceptions and Public Information Needs from the Bottom-Up: Important Elements for Managing Responses to Hazardous NEO's	M. Race
1445	Means of Education about The Impact Hazard – Evaluation and Suggestions Talking 'Planetary Defense' in Schools, Media and Museums	M. Muller
1500	When The Sky Falls: Performing Initial Assessments Of Bright Atmospheric Events	W. Cooke
1515	BREAK	
1540	Is A Special Legal Regime For Planetary Defence Measures Necessary?	H. Mayer

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1555	Covering for impact: Russian media's reporting on planetary defense matters before and after the Chelyabinsk meteor	O. Dobrovidova
1610	Communicating About Asteroid Impact Hazards: Lessons Learned, Challenges To Meet	L. Billings
1625	A Probabilistic Framework for Asteroid Risk Assessment	J. Reinhardt
1640	Poster Papers	
1650	BREAK	
1700	PANEL SESSION: RESPONSE TO HYPOTHETICAL THREAT	
1800	ADJOURN DAY 4	
	CONFERENCE BANQUET	

DAY 5	April 17, 2015
0900	INTRODUCTORY REMARKS
	SESSION 7: THREAT RESPONSE EXERCISE Session Chair: Debbie Lewis, Victoria Friedensen
0910	INJECT 5: HYPOTHETICAL THREAT
1040	BREAK
1110	INJECT 6: HYPOTHETICAL THREAT
1230	LUNCH
1345	INJECT 7: HYPOTHETICAL THREAT
1600	DISCUSSION: LESSONS LEARNED AND RECOMMENDATIONS
1700	CONFERENCE ENDS