

*The National Academies of*  
**SCIENCES • ENGINEERING • MEDICINE**

**AERONAUTICS AND SPACE ENGINEERING BOARD**  
**156<sup>th</sup> Meeting, Fall 2015**  
**NRC Beckman Center, 100 Academy, Irvine, CA: Huntington Room**  
**October 21-22, 2015**  
**AGENDA**

**WEDNESDAY, OCTOBER 21<sup>ST</sup>, 2015**

*Breakfast available at Beckman Center from 7:30am*  
*Car Pool departs Hotel Lobby 7:30am*

Executive Session (ASEB Members Only)		
8:30 am	Board Discussions	
9:20 am	Short Break	
Open Session on Aeronautics Agenda		
9:30 am	ARMD Program Update: <ul style="list-style-type: none"><li>• Impact of Recent ASEB Activities (including recent reports, focus sessions at board meetings, and ARTR)</li><li>• Response to Autonomy Study</li><li>• Challenges Ahead and Where ASEB Can Help</li><li>• Future Studies and Workshops?</li><li>• Discussion by All</li></ul>	<u>Jaiwon Shin, NASA</u>
10:45 am	BREAK	
Focus Session on ARMD and Supporting University Research		
11:00 am	Opening Remarks and Goals for the Session	<u>Patti Grace Smith, Moderator</u>
Questions for the Session <ul style="list-style-type: none"><li>• Is NASA asking the "right" questions of the university researcher?</li><li>• Is NASA doing well at identifying "the need" in order to get the right capability from the university research community?</li><li>• Is there an adequate focus on research that is "cross-cutting/cross institution" in nature rather than specific to one specific institution -- and how can NASA encourage and support more collaborative research between and among academic institutions?</li><li>• In order for the research to be of greater utility from NASA's perspective, how can the agency work with the university research community so that the outputs from academic research can reach a point where NASA or industry can take it and develop it further?</li><li>• Should NASA continue to appeal to universities to pick their research "thrusters" from among those key areas of research need that NASA has already identified or is there a role for more open ended research calls, given the limited budgets available and the fact that NASA is a "mission" agency?</li><li>• What ideas and strategies could be adopted to integrate better minority institutions (HBCU's) and take advantage of the research and findings they have, and can deliver as part of the research responses to the "right questions" ?</li></ul>		
11:05 am	Overview of the Issues and Summary of Recent NASA RFI Response	<u>Jaiwon Shin, NASA</u> <u>Bob Pearce, NASA</u> (by WebEx)
11:25 am	Summary of AFOSR Approach	<u>Ivett Leyva, Michael Berman,</u> <u>AFOSR</u> (By WebEx)

11:45 am	University Perspective on Elements of a Research Support Program (title tbc)	<u>Helen Reed, Karen Feigh, Ella Atkins, ASEB Members</u>
12:05 pm	<i>LUNCH</i>	
1:00 pm	Introduction of the Panelists <ul style="list-style-type: none"><li>Opening Statements (5 mins per panelist)</li><li>Moderated Discussion with Panelists and Board Members</li></ul>	<u>Patti Grace Smith, Moderator</u> <u>Panelists: Mory Gharib, Caltech; Santosh Devasia, Univ Washington ; Aaron Drake, CalPoly State Univ</u>
2:20 pm	<i>BREAK</i>	
<b>Focus Session on Enabling a Long-Term Vision of Vertical Lift / Rotorcraft</b>		
2:40 pm	Opening Remarks and Goals for the Session	<u>Eileen Collins, Moderator</u>
<b>Questions for the Session</b> <ul style="list-style-type: none"><li>What would be a disruptive vision for future crewed and uncrewed rotorcraft and VTOL systems? Disruptions might include significant cost reduction, substantially greater capability (fuel efficiency, noise reduction, new rotor configurations, payload, range and reliability, all weather operations, etc), and significant increases in the quantity of these vehicles throughout the airspace system.</li><li>What developments in key science areas and key enabling technologies would be required to implement that vision?</li><li>How well are current US government, academic, and industrial research and development programs aligned to pursuing these high-priority research in the short term and in the long term? What is the rest of the world doing?</li></ul>		
2:40 pm	Overview of NASA’s Research Program and Goals	<u>Susan Gorton, NASA HQ</u>
3:00 pm	Perspectives from DOD environment	<u>Ashish Bagai, DARPA</u>
3:20 pm	Faster, quieter, safer, and cheaper: distributed electric propulsion and the coming VTOL revolution	<u>Alex Stoll, Joby Aviation</u>
3:40 pm	Title TBC	<u>Mike Hirschberg, AHS</u>
4:00 pm	Introduction of Additional Panelists <ul style="list-style-type: none"><li>Opening Statements (5 mins per panelist)</li><li>Moderated Discussion with Panelists and Board Members</li></ul>	<u>Eileen Collins, Moderator</u> <u>Panelists: Nick Lappos, Sikorsky; Barry R. Lakinsmith, US Army RDE Comnd;</u>
<b>Open Session: Special Guest Speaker</b>		
5:30 pm	Update on SNC Space Systems : Current Focus and Future Vision (strawman title)	<u>Mark Sirangelo, SNC</u>
5:50 pm	Q&A and Discussions with the Board	<u>Les Lyles, ASEB Chair</u>
<b>Closing Session and Dinner</b> <b>(Dinner for board members and guests by invitation only)</b>		
6:15 pm	Final Remarks of the Day	<u>Les Lyles, ASEB Chair</u>
6:30 pm	<i>Break followed by Reception and Dinner(by invitation only) in the Beckman Dining Room - Dinner Speaker: <u>Patrick Stolicker, Deputy Director, Armstrong Flight Research Center</u> (~2 hours)</i>	

**THURSDAY, OCTOBER 22<sup>ND</sup>, 2015**

*Breakfast available at Beckman Center from 7:00am*

*Car Pool Departs Hotel Lobby 7:00am*

Executive Session (ASEB Members Only)		
8:00 am	Board Discussions	
8:45 am	Short Break	
Focus Session on A Technical Update on Orion / SLS		
9:00 am	Orion and SLS Detailed Program Update	<u>William Hill</u> , NASA (by video link from JSC)
9:45 am	Q&A and Discussion with the Board	
10:15 am	Break	
Open Session : Update on Roundtables and Look Forward to Future Work		
10:30 am	Report on Recent Activities at Space Technology Industry, Government, and University Roundtable SLS	<u>Mark Lewis</u> , Member
10:45 am	Report on Recent Activities of Aeronautics Research and Technology Roundtable	<u>Patti Grace Smith</u> , Member
11:00 am	Report on Activities of Standing Committee on Biological and Physical Sciences in Space	<u>Betsy Cantwell</u> , Co-Chair
11:15 am	Wrap Up Discussion <ul style="list-style-type: none"><li>• <i>Future Areas of Study / Workshops</i></li><li>• <i>Future Issues for Board Focus Sessions</i></li></ul>	<u>Les Lyles</u> , ASEB Chair
11:30 am	Break to get LUNCH and bring back to meeting room	
Executive Session (ASEB Members Only)		
11:45 am	LUNCH with Wrap-up Board Discussions	
12:30 pm	Meeting Adjourns	