

SVC Meeting Agenda, 9 - 10 September 2021

Fourteenth Annual Autumn 2021 Project Review and IAB Meeting
NSF IUCRC Smart Vehicle Concepts Center <www.SmartVehicleCenter.org>
Hosted by The Ohio State University
Location: E100 Scott Laboratory, 201 West 19th Avenue, Columbus, OH 43210

Click here to join meeting via Zoom

<https://osu.zoom.us/j/4290089114?pwd=Q21IVE9HS3RsRDBJbVBUDVTV1lzUT09>

DAY 1: Thursday, 9 September 2021 (Room: E100)

OPEN SESSION for Registered Participants

9:30a – 11:15a	Registration		
11:15a – 1:00p	SESSION I: Lunch session		
11:15a	Box lunches available for pick up		
11:30a	MAE Interim Chair's welcome remarks and introduction	R. Siston	
12:00p	Special keynote presentation: Propulsion research for eVTOL	T. Krantz (NASA Glenn Research Center)	
1:00p – 2:00p	SESSION II: Overview of center activities		Presenter(s)
1:00p	Welcome and state of the center	M. Dapino	
1:30p	Overview of Industrial Advisory Board meetings and award presentations	R. Hahnlen (Honda R&D)	
1:45p	Group photo (weather permitting – in courtyard)		
2:00p – 2:30p	Break (coffee and soft drinks) and student posters		
2:30p – 4:00p	SESSION III: Emerging trends in smart vehicle research - SVC research seed and REU program updates		
2:30p	Aeromechanic analysis and optimization of boundary layer ingestion turbomachinery	J. P. Chen	
3:00p	Self-stiffening, lightweight structural materials for energy-efficient transportation systems	H. Cho	
3:15p	On the feasibility of a temperature state observer for powder bed fusion additive manufacturing	D. Hoelzle	
3:30p	Analytical model for vehicle integrated photovoltaic systems	A. Contractor	
3:45p	Industry perspective	H. Shah (MES, Inc.)	
4:15p – 5:30p	Student posters and informal meetings between sponsors and students/researchers		
5:30p	Adjourn: Upon advance request, non-IAB members may visit the labs and interact with students and researchers		

DAY 2: Friday, 10 September 2021 (Room: E100)

CLOSED SESSION for SVC Sponsors and Invited Observers only

8:00a – 8:15a	Breakfast (coffee and bagels) / registration		
Time	Topic	Organization	Presenter(s)
8:15a – 8:30a	Project topics, leaders, and mentors	OSU	M. Dapino
	Project evaluations (L.I.F.E. forms)	OSU	M. Dapino
L.I.F.E. Form Website: http://iucrc.com/ Password: to be provided			



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8:30a - 9:30a	Technical Session I: (FOR SVC MEMBERS ONLY)	Moderated by N. Verma	Presenter(s)	SVC#	Project Leader(s)	Mentor(s) (Organization)
8:30a	Ultrasonic additive manufacturing for automotive structures: UAM process modeling		G. Venkatraman (G)	#51B	M. Dapino L. Headings	J. Cartlidge (Battelle)
8:45a	UAM for structural reinforcement	L. Headings	#51C	R. Hahnlen (Honda R&D)		
9:00a	UAM steel builds	N. Zhao (G)	#51D			
9:15a	Joining of metal and fiber reinforced polymers	H. Guo (G)	#51E			

9:30a	Coffee break / student posters (30 minutes)					
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10:00a-11:20a	Technical Session II: (FOR SVC MEMBERS ONLY)	Moderated by G. Gourdin	Presenter(s)	SVC#	Project Leader(s)	Mentor(s) (Organization)
10:00a	Magnetic gears		I. Nas (G)	#54	M. Dapino	J. Scheidler V. Asnani (NASA)
10:20a	Magnetically-active composites for vehicle applications		C. Wang (G)	#57C	M. Dapino L. Headings	U. Gandhi (Toyota)
10:40a	Distributed programmable actuation platforms		S. Mukhopadhyay (G)	#60	V. Doan-Nguyen N. Verma	S. Joshi (Toyota)
11:00a	Dynamic self-reforming lithium/solid electrolyte interface for solid-state battery		M. Newman (G)	#61	V. Doan-Nguyen	C. Brooks (Honda R&D)

11:20a	Lunch break (40 minutes)					
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12:00p-1:10p	Technical Session III: (FOR SVC MEMBERS ONLY)	Moderated by L. Headings	Presenter(s)	SVC#	Project Leader(s)	Mentor(s) (Organization)
12:00p	Nanostructured materials for high-energy density batteries		G. Gourdin	#62	V. Doan-Nguyen	C. Brooks (Honda R&D)
12:20p	<i>New project:</i> 3D structural batteries in fiber reinforced composite panels		S. Mukhopadhyay (G) L. S. Singavarapu (U)	#61B	A. Contractor N. Verma	C. Brooks (Honda R&D) U. Gandhi P. Gilmore (Toyota)
12:40p	Smart restraint systems		V. Srinivas (G)	#63	M. Dapino	R. Hahnlen S. Malcolm (Honda R&D) S. Dershem (Autoliv)
1:00p	<i>New project:</i> Heat generation and heat dissipation analysis for EV inverters		N. Verma	#64	A. Contractor N. Verma	H. Shah (MES, Inc.)

Key: G - Graduate Student; U - Undergraduate Student

1:20p

Closed Session Adjourns

(IAB members should remain in E100. Non-IAB members may move to labs to talk with students.)

1:30p - 3:15p

INDUSTRIAL ADVISORY BOARD (IAB) MEETING SESSION

1:30p – 2:45p Agenda:

- Minutes of March 2021 meeting and action items – R. Hahnlen
Update on Outstanding Student Presentation Award
Spring 2022 meeting dates
- Center operations – M. Dapino
- Members' perspective
- Discussion and action items

2:45p – 3:15p Executive session (IAB and NSF only)