

SVC Meeting Agenda, 21 – 22 September 2023

Sixteenth Annual Autumn 2023 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

DAY 1: Thursday, 21 September 2023

OPEN SESSION for Registered Participants

9:30a - 11:00a	Registration	
11:00a - 1:00p	SESSION I: Lunch session	Presenter(s)
11:00a	Conference welcome	M. Dapino (OSU)
11:15a	MAE Department Chair remarks	R. Siston (OSU)
11:30a	Box lunches available for pick up	
12:00p	Special keynote presentation: Honda's electrification and resource circulation initiatives: Advancing sustainable mobility	C. Brooks (Honda D&M)
1:00p - 2:00p	SESSION II: Overview of center activities	Presenter(s)
1:00p	State of the center	M. Dapino (OSU)
1:30p	Overview of Industrial Advisory Board meeting and award presentation	R. Hahnen (Honda D&M)
1:45p	<i>Outdoor networking / photos (weather permitting)</i>	
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	Presenter(s)
2:30p	On the feasibility of a temperature state observer for powder bed fusion additive manufacturing	D. Hoelzle
2:45p	In situ alloying in laser deposition metal additive manufacturing	S. Wolff
3:00p	Automated microstructure reconstruction and meshing algorithm for simulating the mechanical behavior of composite materials	S. Soghrati
3:30p	Enhancing electrode interphases for high-energy lithium-ion batteries	J.- H. Kim
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, 22 September 2023

CLOSED SESSION for SVC Sponsors and Invited Observers Only

8:00a - 8:30a	Registration / Breakfast (coffee and bagels)	
8:15a - 8:30a	Topic(s)	Presenter(s)
8:15a	Project topics, leaders, and mentors overview	M. Dapino (OSU)

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8:30a - 9:30a	Technical Session I: <i>Moderated by: I. Nas</i>	Presenter(s)	SVC#	Project Leader(s)	Mentor(s) (Organization)
	Ultrasonic additive manufacturing for automotive structures:				
8:30a	UAM process modeling	M. Ali (G)	#51B	M. Dapino L. Headings B. Losey	R. Hahnlen (Honda D&M)
8:45a	UAM for structural reinforcement	L. Headings	#51C		
9:00a	UAM steel builds	N. Zhao (G)	#51D		
9:15a	Joining of metal and fiber reinforced polymers	N. Zhao (G)	#51E		

9:30a Coffee break / student posters (30 minutes)

10:00a - 11:20a	Technical Session II: <i>Moderated by: B. Losey</i>	Presenter(s)	SVC#	Project Leader(s)	Mentor(s) (Organization)
10:00a	Magnetic gears	F. Portman (U) I. Nas	#54	M. Dapino	J. Scheidler (NASA)
10:20a	Magnetically-active composites for vehicle applications	M. Khattak (G)	#57C	M. Dapino L. Headings B. Losey	U. Gandhi (Toyota)
10:40a	Dynamic self-reforming lithium/solid electrolyte interface for solid-state battery	M. Newman (G)	#61	M. Canova J. Sayre	C. Brooks (Honda D&M)
11:00a	Effective binders for high-loading SiOx anodes	S. Mendez (G)	#62	A. Co	C. Brooks (Honda D&M)

11:20a Lunch break (40 minutes)

12:00p- 1:20p	Technical Session III: <i>Moderated by: L. Headings</i>	Presenter(s)	SVC#	Project Leader(s)	Mentor(s) (Organization)
12:00p	Smart restraint systems	V. Srinivas (G)	#63	M. Dapino	R. Hahnlen (Honda D&M) S. Malcolm (Honda D&M) C. Markusic (Honda D&M) S. Combs (Autoliv)
12:20p	Heat generation and heat dissipation analysis for EV inverters	C. Freund (G) B. Kurapati (U)	#64	A. Contractor	H. Shah (MES, Inc.)
12:40p	Multifunctional structural batteries for electric vehicle	L. S. Singavarapu (G)	#66	J.-H. Kim J. Sayre	P. Gilmore (Toyota)
1:00p	New project: Integrated battery load management and powertrain simulator development for electric school bus fleets	M. Nawaz (G)	#67	Q. Ahmed	J. High (Daimler Truck)

1:20p

CLOSED SESSION ADJOURNS

1:30p

INDUSTRIAL ADVISORY BOARD (IAB) MEETING SESSION (in E100)

1:30p – 2:45p Agenda:

- Minutes of March 2023 meeting and action items – R. Hahnlen
Update on Outstanding Student Presentation Award
Spring 2024 meeting dates
- Center operations – Marcelo Dapino
- Members' perspectives
- Action items and adjourn

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