

SVC Meeting Agenda, 23-24 March 2023

Sixteenth Semi-Annual Spring 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, 23 March 2023

OPEN SESSION for Registered Participants

9:30a - 11:15a	Registration	
11:15a - 1:00p	SESSION I: Lunch session	Presenter(s)
11:15a	Box lunches available for pick up	
11:45a	MAE Associate Chair of Research welcome remarks and introduction	C. Smidts (OSU)
12:00p	Special keynote presentation: Advanced computational and deep learning algorithms for the automated modeling of materials with complex microstructures	S. Soghrati (OSU)

1:00p - 2:00p	SESSION II: Overview of center activities	Presenter(s)
1:00p	Welcome and state of the center	M. Dapino (OSU)
1:30p	Overview of Industrial Advisory Board meeting and award presentation	R. Hahnlen (Honda D&M)
1:45p	<i>Outdoor networking / photos (weather permitting)</i>	

2:00p - 2:30p	Break (coffee and soft drinks) and student posters	
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2:30p - 4:00p	SESSION III: Emerging trends in smart vehicle research - SVC research seed and REU program updates	Presenter(s)
2:30p	Energy-efficient mobility systems	Q. Ahmed (OSU)
2:45p	Aeromechanic analysis and optimization of boundary layer ingestion turbomachinery	A. Wernick (OSU)
3:00p	Large format EV cluster of excellence	A. Contractor (OSU)
3:15p	Modeling of silicon-based anodes for high energy density Li-ion batteries	M. Canova (OSU)
3:30p	Overview of nanostructure materials for high-energy density batteries	J. Gourdin (OSU)
3:45p	On the feasibility of a temperature state observer for powder bed fusion additive manufacturing	D. Hoelzle (OSU)

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, 24 March 2023

CLOSED SESSION for SVC Sponsors and Invited Observers only

8:00a - 8:30a	Breakfast (coffee and bagels)	
8:15a - 8:30a	Topic(s)	Presenter(s)
8:15a	Project topics, leaders, mentors and project evaluations (L.I.F.E. forms)	M. Dapino (OSU)
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: I. Nas	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: (FOR SVC MEMBERS ONLY)	Moderated by: B. Losey	Presenter(s)	SVC#	Project Leader(s)	Mentor(s) (Organization)
10:00a	Magnetic gears		I. Nas	#54	M. Dapino	J. Scheidler (NASA)
10:20a	Magnetically-active composites for vehicle applications		A. Dolph (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. Canova	#61	M. Canova	C. Brooks (Honda D&M)
11:00a	3D structural batteries in fiber reinforced composite panels		L. S. Singavarapu (G)	#61B	A. Contractor	U. Gandhi (Toyota) P. Gilmore (Toyota)

11:20a Lunch break (40 minutes)

12:00p- 1:20p	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		S. Mendez (G)	#62	A. Co	C. Brooks (Honda D&M)
12:20p	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)
12:40p	Heat generation and heat dissipation analysis for EV inverters		C. Freund (U) B. Kurapati (U)	#64	A. Contractor	H. Shah (MES, Inc.)
1:00p	New: Multifunctional Structural Batteries for Electric Vehicle		L. S. Singavarapu (G)	#66	J.- H. Kim J. Sayre	P. Gilmore (Toyota)

1:20p

CLOSED SESSION ADJOURNS

1:30p

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

1:30p – 2:45p Agenda:

- Minutes of September 2022 meeting and action items – R. Hahnlen
- Update on Outstanding Student Presentation Award
- Autumn 2023 meeting dates
- Center operations – Marcelo Dapino
- Members’ perspectives
- Action items and adjourn

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