

SVC Meeting Agenda, 24 – 25 March 2022

Fifteenth Semi-Annual Spring 2022 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, 24 March 2022 (Room: E100)

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	
11:30a	MAE Interim Chair's welcome remarks and introduction	R. Siston (OSU)
12:00p	Special keynote presentation: New challenges in high-speed power transmission systems	D. Talbot (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 meetings and award presentations	R. Hahnen (Honda D&M)
1:45p	Group photo (<i>safe gathering and weather permitting – in courtyard</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	Aeromechanic analysis and optimization of boundary layer ingestion turbomachinery	J. P. Chen (OSU)
3:00p	Self-stiffening, lightweight structural materials for energy-efficient transportation systems	H. Cho (OSU)
3:15p	Analytical model for vehicle integrated photovoltaic systems	A. Contractor (OSU)
3:30p	On the feasibility of a temperature state observer for powder bed fusion additive manufacturing	D. Hoelzle (OSU)
3:45p	Project summary: Distributed programmable actuation platforms	S. Mukhopadhyay (G)
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, 25 March 2022 (Room: E100)

CLOSED SESSION for SVC Sponsors and Invited Observers only

8:00a – 8:15a	Breakfast (coffee and bagels) / registration	
Time	Topic	Presenter(s)
8:15a – 8:30a	Project topics, leaders, mentors and project evaluations (L.I.F.E. forms)	V. Doan-Nguyen (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: <i>Moderated by N. Verma</i> (FOR SVC MEMBERS ONLY)	Presenter(s)	SVC#	Project Leader(s)	Mentor(s) (Organization)
8:30a	Ultrasonic additive manufacturing for automotive structures: UAM process modeling	M. Ali (G)	#51B	M. Dapino L. Headings B. Losey	J. Cartlidge (Battelle)
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		R. Hahnlen (Honda D&M)

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

10:00a-11:20a	Technical Session II: <i>Moderated by G. Gourdin</i> (FOR SVC MEMBERS ONLY)	Presenter(s)	SVC#	Project Leader(s)	Mentor(s) (Organization)
10:00a	Magnetic gears	I. Nas (G) B. Losey	#54	M. Dapino	J. Scheidler (NASA)
10:20a	Magnetically-active composites for vehicle applications	A. Dolph (G) B. Losey	#57C	M. Dapino L. Headings	U. Gandhi (Toyota)
10:40a	Dynamic self-reforming lithium/solid electrolyte interface for solid-state battery	M. Newman (G)	#61	V. Doan-Nguyen	C. Brooks (Honda D&M)
11:00a	3D structural batteries in fiber reinforced composite panels	S. Mukhopadhyay (G) L. S. Singavarapu (U)	#61B	A. Contractor N. Verma	C. Brooks (Honda D&M) U. Gandhi (Toyota) P. Gilmore (Toyota)

11:20a Lunch break (40 minutes)

12:00p-1:00p	Technical Session III: <i>Moderated by L. Headings</i> (FOR SVC MEMBERS ONLY)	Presenter(s)	SVC#	Project Leader(s)	Mentor(s) (Organization)
12:00p	Nanostructured materials for high-energy density batteries	S. Mendez (G) G. Gourdin	#62	V. Doan-Nguyen	C. Brooks (Honda D&M)
12:20p	Heat generation and heat dissipation analysis for EV inverters	N. Verma	#64	A. Contractor N. Verma	H. Shah (MES, Inc.)
12:40p	Smart restraint systems	V. Srinivas (G)	#63	M. Dapino	R. Hahnlen (Honda D&M) S. Malcolm (Honda D&M) C. Markusic (Honda D&M) R. Jones (Autoliv)

Key: G - Graduate Student; U - Undergraduate Student

1:00p Closed Session Adjourns

1:30p - 3:15p INDUSTRIAL ADVISORY BOARD (IAB) MEETING SESSION (in E100)

1:30p – 2:45p Agenda:

- Minutes of September 2021 meeting and action items – R. Hahnlen
Update on Outstanding Student Presentation Award
Autumn 2022 meeting dates
- Center operations – Marcelo Dapino
- Members' perspectives
- Action items and adjourn

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