

SVC Meeting Agenda, 18-19 March 2021

**Fourteenth Semi-Annual Spring 2021 Project Review and IAB Meeting
NSF IUCRC Smart Vehicle Concepts Center <www.SmartVehicleCenter.org>**

Hosted by The Ohio State University

Location: E100 & E525 Scott Laboratory, 201 West 19th Avenue, Columbus, OH 43210 (in-person TBD)

DAY 1: Thursday, 18 March 2021 (Room: E100)

OPEN SESSION for Registered Participants

9:30a – 11:15a	Registration		
9:00a – 11:00a	Short course on physics-based modeling of additive manufacturing processes		D. Hoelzle (OSU)
11:15a – 1:00p	SESSION I: Lunch session		
11:15a – 11:30a	Box lunches available for pick up		
11:30a – 11:40a	MAE Chair's welcome remarks and introduction		J. Gregory (TBD)
11:40a – 11:55a	Group photo		
12:00p	Special keynote presentation:		G. Palombo (Polytec, Inc.)
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. Hahnlen (Honda R&D)
1:45p	NSF IUCRC program		NSF (TBD)
2:00p – 2:30p	Break (coffee and soft drinks) and student posters		
2:30p – 4:15p	SESSION III: Emerging trends in smart vehicle research: SVC research seed and REU program updates		
2:30p	The future of smart mobility		C. Atkinson
3:00p	On the feasibility of a temperature state observer for powder bed fusion additive manufacturing		D. Hoelzle
3:15p	Aeromechanic analysis and optimization of boundary layer ingestion turbomachinery		J. P. Chen
3:30p	Investigation of metal corrosion by in-situ electrochemical force microscopy		H. Cho
3:45p	Analytical model for vehicle integrated photovoltaic systems		A. Contractor
4:00p	Member's perspective		NASA (TBD)
4:15p – 5:30p	Student posters continued 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		
5:45p – 7:15p	INDUSTRIAL ADVISORY BOARD (IAB) MEETING – Session I (dinner provided) (Room: E100)		
	Agenda:		
	<ul style="list-style-type: none"> • Minutes of September 2020 Meeting and action items • Update on Outstanding Student Presentation Award • Autumn 2021 meeting dates 		
7:15p – 7:45p	Executive session (IAB and NSF only)		

DAY 2: Friday, 19 March 2021 (Room: E100)

CLOSED SESSION for SVC Sponsors & 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	TBD
	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 - 9:50a	Technical Session I: <i>Moderated by G. Gourdin</i> (FOR SVC MEMBERS ONLY)	Presenter(s)	SVC#	Project Leader(s)	Mentor(s) (Organization)
8:30a	Embedded fiber optic sensors for structural health monitoring	M. Dapino	#49	M. Dapino	T. Greetham (Moog)
8:50a	Ultrasonic additive manufacturing for automotive structures: UAM process modeling	G. Venkatraman (G)	#51B	M. Dapino L. Headings	J. Cartlidge (Battelle)
9:05a	UAM for structural reinforcement	L. Headings	#51C		R. Hahnlen (Honda R&D)
9:20a	UAM steel builds	T. Han (G)	#51D		
9:35a	Joining of metal and fiber reinforced polymers	H. Guo (G)	#51E		

9:50a	Break (coffee and soft drinks) / student posters				
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10:05a-11:25a	Technical Session II: <i>Moderated by L. Headings</i> (FOR SVC MEMBERS ONLY)	Presenter(s)	SVC#	Project Leader(s)	Mentor(s) (Organization)
10:05a	Multifunctional structural polymer composites for vehicle electrification	M. Newman (G)	#52	V. Sundaresan	M. Mallamaci S. Gupta (Parker Hannifin)
10:25a	Magnetic gears	I. Nas (G)	#54	M. Dapino	J. Scheidler V. Asnani (NASA)
10:45a	Flexible piezoelectric sensors for vehicle applications: Air speed and direction measurement	A. Ramanathan (G)	#57B	M. Dapino L. Headings	U. Gandhi (Toyota)
11:05a	Optical multifunctional materials – Architectures for structural sensors: Architecture for mechanoluminescent structural sensors and sensing platforms	M. Demissie (G)	#58A	V. Sundaresan	D. Detwiler A. Sheldon (Honda R&D) S. Miller (NASA)

11:30a	BREAK (30 minutes)				
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12:00p-1:20p	Technical Session III: <i>Moderated by N. Verma</i> (FOR SVC MEMBERS ONLY)	Presenter(s)	SVC#	Project Leader(s)	Mentor(s) (Organization)
12:00p	Distributed programmable actuation platforms	S. Mukhopadhyay (G)	#60	V. Sundaresan	S. Joshi (Toyota)
12:20p	Dynamic self-reforming lithium/solid electrolyte interface for solid-state battery	M. Newman (G)	#61	V. Sundaresan	C. Brooks (Honda R&D)
12:40p	Nanostructured materials for high-energy density batteries	G. Gourdin S. Mendez (G)	#62	V. Doan-Nguyen	C. Brooks (Honda R&D)
1:00p	Smart restraint systems	S. Dong V. Srinivas (G)	#63	M. Dapino S. Dong	R. Hahnlen (Honda R&D) B. Pipkorn (Autoliv)

Key: G - Graduate Student; U - Undergraduate Student

1:25p

Closed Session Adjourns

(IAB members should go to E525. Non-IAB members may move to labs to talk with students.)

1:30p - 3:00p

INDUSTRIAL ADVISORY BOARD (IAB) MEETING SESSION II (in E525)

Agenda:

- Center operations – Marcelo Dapino
- L.I.F.E. form summaries and discussion
- Members' perspectives
- Action items and adjourn