

SVC Meeting Agenda, 10-11 September 2020

Thirteenth Annual Autumn 2020 Project Review and IAB Meeting
NSF IUCRC Smart Vehicle Concepts Center <www.SmartVehicleCenter.org>
Hosted by The Ohio State University
[RSVP here](#)
All times EST

DAY 1: SESSIONS I-III WILL NOT CONVENE VIRTUALLY OR IN-PERSON

OPEN SESSION for Registered Participants

ALL BLOCKS HIGHLIGHTED IN YELLOW WILL BE AVAILABLE TO REGISTERED PARTICIPANTS AS A PRE-RECORDED PRESENTATION

Short course on physics-based modeling of additive manufacturing processes	D. Hoelzle (OSU) POSTPONED
Group photo	POSTPONED

SESSION I: Opening of meeting:	
Welcome remarks and introduction from MAE Associate Chair for Administration	R. Siston (OSU)
Special keynote presentation: Autonomous air and ground vehicles – safely adapting to complex and changing environments	J. Gregory (OSU)

SESSION II: Overview of center activities:	
Welcome presentation	M. Dapino (OSU)
State of the center	M. Dapino (OSU)
Overview of Industrial Advisory Board meetings and award presentations	R. Hahnlen (Honda R&D)
NSF IUCRC program	P. Balan (NSF)

SESSION III: Emerging trends in smart vehicle research: SVC research seed program updates:	
<i>Each pre-recorded presentation is 15 minutes in duration</i>	
Investigation of metal corrosion by in-situ electrochemical force microscopy	H. Cho
Aeromechanic analysis and optimization of boundary layer ingestion turbomachinery	J. P. Chen
New: Analytical model for vehicle integrated photovoltaic systems	A. Contractor
Solution processing of thermochromic vanadium dioxide smart windows	V. Doan-Nguyen
New: Smart restraint systems	S. Dong
On the feasibility of a temperature state observer for powder bed fusion additive manufacturing	D. Hoelzle
Member's perspective	M. Mallamaci (Parker Hannifin)

2:00p – 3:30p	SESSION IV: DAY 1 INDUSTRIAL ADVISORY BOARD (IAB) MEETING – VIRTUAL (for IAB members, faculty, and NSF)
Agenda: <ul style="list-style-type: none"> • Approval of March 2020 minutes and action items • Update on Outstanding Student Presentation Award • Spring 2021 meeting dates • Executive session (IAB and NSF only) 	

DAY 2: Friday, 11 September 2020

CLOSED SESSION for SVC Sponsors and Invited Observers only

ALL DAY 2 PRESENTATIONS WILL BE DELIVERED VIRTUALLY IN REAL TIME AT THE TIMES SHOWN BELOW
All times EST

Time	Topic	Organization	Presenter(s)
8:15a – 8:30a	Project topics, leaders, and mentors	OSU	V. Sundaresan
	Virtual introductions and 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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ALL DAY 2 PRESENTATIONS WILL BE DELIVERED VIRTUALLY IN REAL TIME AT THE TIMES SHOWN BELOW
All times EST
EACH PRESENTATION WILL ALLOW FOR 5 MINUTES QUESTIONS AND ANSWERS

L.I.F.E. Form Website: <http://iucrc.com/> Password: to be provided

8:30a - 9:50a	Technical Session I: (FOR SVC MEMBERS ONLY)	<i>Moderated by T. Hery</i>	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:		G. Venkatraman (G)	#51B	M. Dapino L. Headings	J. Cartlidge (Battelle) R. Hahnlen (Honda R&D)
9:05a	UAM process modeling		L. Headings	#51C		
9:20a	UAM for structural reinforcement		T. Han (G)	#51D		
9:35a	UAM steel builds		H. Guo (G)	#51E		
9:35a	New project: Joining of metal and fiber reinforced polymers					

9:50a BREAK (15 minutes)

10:05a-11:25a	Technical Session II: (FOR SVC MEMBERS ONLY)	<i>Moderated by L. Headings</i>	Presenter(s)	SVC#	Project Leader(s)	Mentor(s) (Organization)
10:05a	Multifunctional structural polymer composites for vehicle electrification		M. Newman (G)	#52	T. Hery V. Sundaresan	M. Mallamaci S. Gupta (Parker Hannifin)
10:25a	Magnetic gears		I. Nas (G) B. Losey (G) M. Moore (U)	#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) T. Hery	#58A	T. Hery V. Sundaresan	D. Detwiler A. Sheldon (Honda R&D) S. Miller (NASA)

11:30a BREAK (30 minutes)

12:00p-1:00p	Technical Session III: (FOR SVC MEMBERS ONLY)	<i>Moderated by N. Verma</i>	Presenter(s)	SVC#	Project Leader(s)	Mentor(s) (Organization)
12:00p	New project: Distributed programmable actuation platforms		S. Mukhopadhyay (G)	#60	T. Hery V. Sundaresan	S. Joshi (Toyota)
12:15p	New project: Dynamic self-reforming lithium/solid electrolyte interface for solid-state battery		M. Newman (G)	#61	T. Hery V. Sundaresan	C. Brooks (Honda R&D)
12:30p	New project: Nanostructured materials for high-energy density batteries		P. Loughney (G)	#62	V. Doan-Nguyen	C. Brooks (Honda R&D)
12:45p	New project: Smart restraint systems		V. Srinivas (G) S. Wang (G) S. Dong	#63	M. Dapino S. Dong	R. Hahnlen (Honda R&D) B. Pipkorn (Autoliv)

Key: G - Graduate Student; U - Undergraduate Student

1:00p	Closed Session Adjourns
1:30p - 3:00p	DAY 2 INDUSTRIAL ADVISORY BOARD (IAB) MEETING (for IAB members, faculty, and NSF) – VIRTUAL
Agenda: <ul style="list-style-type: none"> • Center operations – Marcelo Dapino • L.I.F.E. form summaries and discussion • Members' perspective • Action items and adjourn 	