

SVC Meeting Agenda, 26-27 March 2020

<p>Thirteenth Semi-Annual Spring 2020 Project Review & 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</p>
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DAY 1: Thursday, 26 March 2020 (Room: E100)

OPEN SESSION for Registered Participants

9:30a – 11:15a	Registration
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9:00a – 11:00a	Short course on physics-based modeling of additive manufacturing processes	D. Hoelzle (OSU)
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11:15a – 1:00p	Lunch session
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11:15a – 11:30a	Box lunches available for pick up	
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11:30a – 11:40a	MAE Chair's welcome remarks and introduction	V. Subramaniam
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11:40a – 11:55a	Group photo	
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12:00p	Special keynote presentation: Autonomous air and ground vehicles – safely adapting to complex and changing environments	J. Gregory (OSU)
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1:00p – 2:05p	Overview of center activities	Presenter(s)
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1:00p	Welcome and state of the center	M. Dapino (OSU)
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1:30p	Overview of Industrial Advisory Board meetings and award presentations	R. Hahnlen (Honda R&D)
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1:35p	NSF IUCRC program	G. Reed (NSF)
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2:05p – 2:30p	Break (coffee and soft drinks) and student posters
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2:30p – 4:15p	Emerging trends in smart vehicle research: SVC research seed program updates
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2:30p	Integrated hyperdamping material systems for vibration, noise, and shock attenuation applications	R. Harne
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2:45p	On the feasibility of a temperature state observer for powder bed fusion additive manufacturing	D. Hoelzle
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3:00p	Aeromechanic analysis and optimization of boundary layer ingestion turbomachinery	J. P. Chen
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3:15p	Solution processing of thermochromic vanadium dioxide smart windows	V. Doan-Nguyen
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3:30p	New: Smart restraint systems	S. Dong
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3:45p	New: Analytical model for vehicle integrated photovoltaic systems	A. Contractor
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4:00p	Member's perspective	M. Mallamaci (Parker Hannifin)
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4:15p – 5:30p	Student posters continued and informal meetings between sponsors and students/researchers
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5:30p	Adjourn: Upon advance request, non-IAB members may visit the labs and interact with students and researchers
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5:45p – 7:15p INDUSTRIAL ADVISORY BOARD (IAB) MEETING – Session I (dinner provided) (Room: E525)

Agenda:

- Minutes of September 2019 Meeting and action items
- Update on Outstanding Student Presentation Award
- Autumn 2020 meeting dates

7:15p – 7:45p Executive session (IAB and NSF only)

DAY 2: Friday, 27 March 2020 (Room: E100)

CLOSED SESSION for SVC Sponsors & Invited Observers only

8:00a – 8:15a	Breakfast (coffee and bagels) & Registration (if not present on Day 1)
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Time	Topic	Organization	Presenter(s)
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8:15a – 8:30a	Project topics, leaders, and mentors	OSU	V. Sundaresan
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	Project evaluations (L.I.F.E. forms)	VentureWell (NSF Evaluator)	V. Hill
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L.I.F.E. Form Website: <http://iucrc.com/> Password: to be provided



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8:30a - 9:40a	Technical Session I: <i>Moderated by P. Vijayaraghavan</i> (FOR SVC MEMBERS ONLY)	Presenter(s)	SVC#	Project Leader(s)	Mentor(s) (Organization)
8:30a	Project Summary: Mechanoluminescent paintable light sources in automotive lighting systems	S. Krishnan (G)	#46	V. Sundaresan	D. Detwiler N. Verwys A. Smith (Honda R&D)
8:50a	Embedded fiber optic sensors for structural health monitoring	J. Morris (G)	#49	M. Dapino	T. Greetham (Moog)
9:10a	Ultrasonic additive manufacturing for automotive structures: UAM process modeling	G. Venkatraman (G)	#51B	M. Dapino B. Gingerich	J. Cartlidge (Battelle)
9:25a	UAM for structural reinforcement	B. Gingerich	#51C	L. Headings	R. Hahnlén (Honda R&D)

9:40a Break (coffee and soft drinks) / student posters

10:10a-11:20a	Technical Session II: <i>Moderated by B. Gingerich</i> (FOR SVC MEMBERS ONLY)	Presenter(s)	SVC#	Project Leader(s)	Mentor(s) (Organization)
10:10a	Ultrasonic additive manufacturing for automotive structures: UAM steel builds	T. Han (G)	#51D	M. Dapino B. Gingerich	R. Hahnlén (Honda R&D)
10:25a	New project: Joining of metal and fiber reinforced polymers	H. Guo (G)	#51E	L. Headings	
10:40a	Multifunctional structural polymer composites for vehicle electrification	P. Vijayaraghavan	#52	V. Sundaresan	M. Mallamaci S. Gupta (Parker Hannifin)
11:00a	Robust Integrated Magnetic Composites (RIMaC) for magnetic gears	I. Nas (G) B. Losey (G) M. Moore (U)	#54	M. Dapino	V. Asnani J. Scheidler (NASA)

11:20a Working lunch

12:15p - 1:25p	Technical Session III: <i>Moderated by L. Headings</i> (FOR SVC MEMBERS ONLY)	Presenter(s)	SVC#	Project Leader(s)	Mentor(s) (Organization)
12:15p	Flexible piezoelectric sensors for vehicle applications: Part B: Air speed and direction measurement	A. Ramanathan (G)	#57B	M. Dapino L. Headings	U. Gandhi (Toyota)
12:35p	Optical multifunctional materials – Architectures for structural sensors: Architecture for mechanoluminescent structural sensors and sensing platforms	S. Gupta (G) A. Mohamed (U)	#58A	V. Sundaresan P. Vijayaraghavan	D. Detwiler A. Sheldon (Honda R&D); S. Miller (NASA)
12:50p	Project summary: Photoluminescent phosphors for visualizing thermomechanical stress in power electronic devices	V. Venkatesh (G) S. Krishnan (G)	#58B		S. Joshi (Toyota)
1:05p	New project: Multifunctional structural panels with electroluminescence	M. Demissie (G)	#59	V. Sundaresan	N. Verwys (Honda R&D)
1:15p	New project: Distributed programmable actuation platforms	S. Mukhopadhyay (G)	#60	V. Sundaresan	S. Joshi (Toyota)

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 – Victoria Hill
- Members' perspectives
- Action items and adjourn