

# SVC Meeting Agenda, 19-20 September 2019

**Twelfth Annual Autumn 2019 Project Review & IAB Meeting**  
**NSF IUCRC Smart Vehicle Concepts Center <[www.SmartVehicleCenter.org](http://www.SmartVehicleCenter.org)>**  
**Hosted by The Ohio State University**

**Location: E100 & E525 Scott Laboratory, 201 West 19<sup>th</sup> Avenue, Columbus, OH 43210**

**DAY 1: Thursday, 19 September 2019 (Room: E100)**

**OPEN SESSION for Registered Participants**

<b>9:45a – 11:30a</b>	<b>Registration</b>
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<b>9:00a – 11:00a</b>	<b>Lab tours and individual research meetings (upon request)</b>
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<b>11:30a – 1:00p</b>	<b>Lunch session</b>	
11:30a	MAE Associate Chair's welcome remarks and introduction	R. Siston
11:45a	Special keynote presentation: Optimum 3D assembly for lightweight structures	A. Luscher (OSU)

<b>1:00p – 2:00p</b>	<b>Overview of center activities</b>	<b>Presenter(s)</b>
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	L.I.F.E. forms	V. Hill (VentureWell)

<b>2:00p – 2:30p</b>	<b>Break (coffee and soft drinks) and student posters</b>
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<b>2:30p – 4:00p</b>	<b>Emerging trends in smart vehicle research (SVC Research Seed Program and SVC REU Program updates)</b>	<b>Presenter(s)</b>
2:30p	Integrated hyperdamping material systems for vibration, noise, and shock attenuation applications	R. Harne
2:45p	On the feasibility of a temperature state observer for powder bed fusion additive manufacturing	D. Hoelzle
3:00p	Aeromechanic analysis and optimization of boundary layer ingestion turbomachinery	J. P. Chen
3:15p	Investigation of metal corrosion by in-situ electrochemical force microscopy	H. Cho
3:30p	Solution processing of thermochromic vanadium dioxide smart windows	V. Doan-Nguyen
3:45p	Member's perspective	J. Carlidge (Battelle)

<b>4:15p – 5:30p</b>	<b>Student posters continued and informal meetings between sponsors and students/researchers</b>
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<b>5:30p</b>	<b>Adjourn:</b> Non-IAB member may visit the labs and interact with students and researchers upon request
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**5:45p – 7:15p INDUSTRIAL ADVISORY BOARD (IAB) MEETING – Session I (dinner provided) (Room: E525)**  
**Agenda:**

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

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

**DAY 2: Friday, 20 September 2019 (Room: E100)**

**CLOSED SESSION for SVC Sponsors & Invited Observers only**

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

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8:30a - 9:30a	Technical Session I: <i>Moderated by P. Vijayaraghavan</i> (FOR SVC MEMBERS ONLY)	Presenter(s)	SVC#	Project Leader(s)	Mentor(s) (Organization)
8:30a	Characterization and modeling of passive and adaptive bushings and mounts: Nonlinear isolator dynamics	R. Singh L. Fredette A. Pawar (VS) H. Bansal (VS) S. Deshmukh (VS)	#40F	R. Singh	(RIYA Scholars Program) (Ford)
8:50a	Mechanoluminescent paintable light sources in automotive lighting systems	S. Krishnan (G)	#46	V. Sundaresan	D. Detwiler N. Verwys K. Richardson A. Smith (Honda R&D)
9:10a	Embedded fiber optic sensors for structural health monitoring	S. Chillelli J. Morris (G)	#49	M. Dapino	T. Greetham (Moog)

**9:30a Break (coffee and soft drinks) / student posters**

10:10-11:30a	Technical Session II: <i>Moderated by S. Chillara</i> (FOR SVC MEMBERS ONLY)	Presenter(s)	SVC#	Project Leader(s)	Mentor(s) (Organization)
10:10a	Ultrasonic additive manufacturing for automotive structures: UAM process modeling	G. Venkatraman (G)	#51B	M. Dapino B. Gingerich L. Headings	J. Carlidge (Battelle)
	Ultrasonic additive manufacturing for automotive structures: UAM for structural reinforcement	Y. Rong (G)	#51C		R. Hahnlen (Honda R&D)
	Ultrasonic additive manufacturing for automotive structures: UAM steel builds	T. Han (G)	#51D		
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: Magnetic Additively-Manufactured Structural Hybrid (MASH)	I. Nas (G) B. Losey (G) M. Moore (U)	#54A	M. Dapino	V. Asnani J. Scheidler (NASA)
	Robust Integrated Magnetic Composites (RIMaC) for magnetic gears: Magnetic Gear Drives (MGDs) for automotive applications		#54B		R. Hahnlen (Honda R&D)

**11:45a Working lunch**

12:30p - 1:30p	Technical Session III: <i>Moderated by L. Headings</i> (FOR SVC MEMBERS ONLY)	Presenter(s)	SVC#	Project Leader(s)	Mentor(s) (Organization)
12:30p	Flexible piezoelectric sensors for vehicle applications	A. Ramanathan (G)	#57	M. Dapino L. Headings	U. Gandhi (Toyota)
12:50p	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)
1:10p	Optical multifunctional materials – Architectures for structural sensors: Photoluminescent phosphors for visualizing thermomechanical stress in power electronic devices	V. Venkatesh (G) S. Krishnan (G)	#58B		S. Joshi (Toyota)

Key: G - Graduate Student; U - Undergraduate Student; VS – Visiting Scholar

**1:30p 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