

# 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](http://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: [Click on hyperlinks to access the pre-recorded presentations](#)

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

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|---|----------------------------|
| <b>SESSION I: Opening of meeting:</b>           |                            |
| Welcome remarks and introduction from MAE Chair | J. Gregory (OSU)           |
| Special keynote presentation:                   | G. Palombo (Polytec, Inc.) |

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| <b>SESSION II: Overview of center activities:</b>                      | <b>Presenter(s)</b>    |
| 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  | NSF (TBD)              |

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|---|---------------------|
| <b>SESSION III: Emerging trends in smart vehicle research: SVC research seed and REU program updates:</b> |                     |
| <i>Each pre-recorded presentation is 15 minutes in duration</i>   |                     |
| The Future of Smart Mobility  | C. Atkinson         |
| Aeromechanic analysis and optimization of boundary layer ingestion turbomachinery                         | J. P. Chen          |
| Self-stiffening, lightweight structural materials for energy-efficient transportation systems             | H. Cho              |
| Analytical model for vehicle integrated photovoltaic systems  | A. Contractor       |
| On the feasibility of a temperature state observer for powder bed fusion additive manufacturing           | D. Hoelzle          |
| Member's perspective  | J. Scheidler (NASA) |

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

## DAY 2: Friday, 19 March 2021

## CLOSED SESSION for SVC Sponsors & 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          | M. Dapino    |
|               | Project evaluations (L.I.F.E. forms) | OSU          | M. Dapino    |

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

# SVC Meeting Agenda, 18-19 March 2021

| 8:30a - 9:30a | Technical Session I:<br>(FOR SVC MEMBERS ONLY)                                       | Moderated by N. Verma | Presenter(s)       | SVC# | Project Leader(s) | Mentor(s) (Organization) |
|---------------|--|-----------------------|--------------------|------|-------------------|--------------------------|
| 8:30a         | Ultrasonic additive manufacturing for automotive structures:<br>UAM process modeling |                       | G. Venkatraman (G) | #51B |                   | J. Cartledge (Battelle)  |
| 8:45a         | UAM for structural reinforcement   |                       | L. Headings        | #51C | M. Dapino         |                          |
| 9:00a         | UAM steel builds   |                       | N. Zhao (G) - TBD  | #51D | L. Headings       | R. Hahnlen (Honda R&D)   |
| 9:15a         | Joining of metal and fiber reinforced polymers                                       |                       | H. Guo (G)         | #51E |                   |                          |

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| 9:30a | <b>BREAK (30 minutes)</b> |  |  |  |  |  |
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| 10:00a-11:20a | Technical Session II:<br>(FOR SVC MEMBERS ONLY)   | Moderated by G. Gourdin | Presenter(s)                | SVC# | Project Leader(s)         | Mentor(s) (Organization)                                  |
|---------------|---|-------------------------|-----------------------------|------|---------------------------|---|
| 10:00a        | Multifunctional structural polymer composites for vehicle electrification   |                         | M. Newman (G)               | #52  | V. Sundaresan<br>N. Verma | M. Mallamaci<br>S. Gupta (Parker Hannifin)                |
| 10:20a        | Magnetic gears  |                         | I. Nas (G)<br>C. Freund (U) | #54  | M. Dapino                 | J. Scheidler<br>V. Asnani (NASA)                          |
| 10:40a        | Flexible piezoelectric sensors for vehicle applications:<br>Air speed and direction measurement   |                         | A. Ramanathan (G)           | #57B | M. Dapino<br>L. Headings  | U. Gandhi (Toyota)  |
| 11:00a        | Optical multifunctional materials – Architectures for structural sensors:<br>Architecture for mechanoluminescent structural sensors and sensing platforms |                         | M. Demissie (G)             | #58A | V. Sundaresan<br>N. Verma | D. Detwiler<br>A. Sheldon (Honda R&D)<br>S. Miller (NASA) |

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| 11:20a | <b>BREAK (25 minutes) / Raffle (winners announced before the start of Session III)</b> |  |  |  |  |  |
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| 11:45a | <b>Winners announced: student award competition and raffle award winners</b> |  |  |  |  |  |
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| 12:00p-1:20p | Technical Session III:<br>(FOR SVC MEMBERS ONLY)                                   | Moderated by L. Headings | Presenter(s)                | SVC# | Project Leader(s)         | Mentor(s) (Organization)                       |
|--------------|--|--------------------------|-----------------------------|------|---------------------------|--|
| 12:00p       | Distributed programmable actuation platforms                                       |                          | S. Mukhopadhyay (G)         | #60  | V. Sundaresan<br>N. Verma | S. Joshi (Toyota)                              |
| 12:20p       | Dynamic self-reforming lithium/solid electrolyte interface for solid-state battery |                          | M. Newman (G)               | #61  | V. Sundaresan<br>N. Verma | C. Brooks (Honda R&D)                          |
| 12:40p       | Nanostructured materials for high-energy density batteries                         |                          | G. Gourdin<br>S. Mendez (G) | #62  | V. Doan-Nguyen            | C. Brooks (Honda R&D)                          |
| 1:00p        | Smart restraint systems  |                          | S. Dong<br>V. Srinivas (G)  | #63  | M. Dapino<br>S. Dong      | R. Hahnlen (Honda R&D)<br>B. Pipkorn (Autoliv) |

Key: G - Graduate Student; U - Undergraduate Student

- 1:20p                      **Closed Session Adjourns**
- 1:30p - 3:00p        **DAY 2 INDUSTRIAL ADVISORY BOARD (IAB) MEETING SESSION II (for IAB members, faculty, and NSF) - VIRTUAL**
- Agenda:**
- Center operations – Marcelo Dapino
  - L.I.F.E. form summaries and discussion
  - Members' perspective
  - Action items and adjourn