



# SOLAR CAR CONFERENCE

February 1-3, 2019 | Greater St. Louis Area  
Southern Illinois University Edwardsville

## 2019 SCHEDULE

### FRIDAY, FEBRUARY 1

4:30-5:30pm	On-site Registration & Check-in	MUC Conference Center
5:30-6:30pm	Opening Session	
6:30-7:15pm	Casual Dinner (provided by SIUE)	
7:15-8:00pm	Planning & Managing a Successful Project	
8:15-9:30pm	FSGP/ASC 2020 Regulations Overview	

### SATURDAY, FEBRUARY 2

8:00-8:30am	Morning General Session	MUC Ballroom
8:45-10:15am	Breakout Sessions #1 & One-on-Ones	EB
10:30am-Noon	Breakout Sessions #2 & One-on-Ones	EB
Noon-2:00pm	Networking Lunch – by role/interest (lunch on own – food court at MUC)	EB
2:00-3:30pm	Breakout Sessions #3 & One-on-Ones	EB
3:45-5:15pm	Breakout Sessions #4 & One-on-Ones	EB
5:30-6:00pm	ISF Update	MUC Ballroom
6:00-7:30pm	Buffet Dinner (provided by SIUE)	MUC Ballroom
7:30-9:00pm	After Party & Solar Car Shop Tour	MUC/EB

### SUNDAY, FEBRUARY 3

8:00-9:30am	Breakout Sessions #5 & One-on-Ones	EB
9:45-11:15am	Breakout Sessions #6 & One-on-Ones	EB
11:30am-12:30pm	Closing Session	MUC Ballroom

General Sessions Morris University Center (MUC)	Breakout Sessions & One-on-Ones Engineering Building (EB)
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## SATURDAY, FEBRUARY 2 DETAILS

### 8:45-10:15am Breakout Sessions #1

#### Battery Technology *(Steve McMullen)*

EB 0145

This session will cover what a team needs to know when selecting a battery.

#### Preparing Your Mechanical Report *(Brian Call)*

EB 1150

In recent years, the mechanical report has evolved to hopefully make it easier for teams to complete and less time-intensive for the inspectors to review. Come hear first-hand how to approach completing your mechanical report to get it right the first time.

#### Managing Expectations Across Customers *(Paul Hirtz)*

EB 1033

With a solar car project, you have many different stakeholders. Learn how to manage expectations across university officials, sponsors, alumni, faculty, event organizers, team members, etc.

#### Getting Started for New Teams *(Evan Stumpges)*

EB 2011

A great session for teams just getting started and teams that have experienced a significant turnover in leadership! Get guidance on everything from completing the required paperwork to working with your university for proof of insurance and the team participation agreement. Learn how to achieve "all green" on the pre-event status board and get an early scrutineering slot.

#### One-on-Ones Opportunities (EB 2160 & 2170)

Dan Bohachick  
Linda Bozarth  
John Broere  
Alec Carpenter  
Alain Chuzel  
Dan Eberle  
Wade Johanns  
Gail Lueck  
Senait Nuguse  
Dale Reid  
Adem Rudin

### 10:30am-Noon Breakout Sessions #2

#### Designing & Building a Race Pack *(Steve McMullen)*

EB 0145

This session will cover observations and suggestions when designing and building a race pack.

#### Composites Design *(Wade Johanns)*

EB 1150

Basic design considerations and best practices for composite bodies, frames, and other solar car components. This will include designing effective load paths, design for manufacturing, selecting materials, and how to test designs.

#### Effective Leadership *(Senait Nuguse)*

EB 1033

The goal of this session is to give you advice on how to be a more effective leader within your team. During the session, we will discuss leadership principles, tips specific to handling the challenges behind leading solar car teams, and advice on how to conduct effective team building.

#### How to Win Using Modeling and Simulation? *(Swaroop Seshadri)*

EB 2011

This session will cover how simulations can help teams gain a significant advantage in their design cycles. The presentation will introduce MATLAB and Simulink examples in the applications areas of battery modeling, vehicle modeling, control system design and suspension tuning. Come to the session and also learn how MathWorks supports the American Solar Challenge participants!



#### One-on-Ones Opportunities (EB 2160 & 2170)

Dan Bohachick  
Linda Bozarth  
John Broere  
Brian Call  
Alec Carpenter  
Alain Chuzel  
Dan Eberle  
Paul Hirtz  
Gail Lueck  
Dale Reid  
Evan Stumpges

### Noon-2:00pm Networking Lunch

Head to the MUC Food Court to purchase lunch (on your own) and then choose from the following networking opportunities based on role or interest. **Sessions to start at ~12:30pm.**

#### Advisor Roundtable *(Paul Hirtz, John Broere, & Dan Eberle)*

EB 2011

This session is for Team Advisors only. Come join an interactive discussion on topics that matter to you with those that are currently advising teams or have in the past. Get ideas to help guide your team to success while still allowing them to learn from their mistakes. While students often come and go with graduation, the advisor role maintains continuity for the long-term.

#### Team Leader Roundtable *(Evan Stumpges & Senait Nuguse)*

EB 1033

Join other student team leaders and discuss the topics that are on your mind. Topics may include general leadership of a team, working with officials, recruiting, and much more. This is an opportunity for those in leadership positions to share and learn from others in similar positions.

#### Table Discussion Groups *(Varies)*

MUC Food Court

Pick a table in the food court area for impromptu discussions. This is a great time to connect with other teams or ask the inspectors about their history with the event.

## SATURDAY, FEBRUARY 2 DETAILS (CONTINUED)

### 2:00-3:30pm Breakout Sessions #3

<b>BPS: Battery Protection Systems</b> ( <i>Dan Bohachick</i> )	EB 0145	<b>One-on-Ones Opportunities</b> (EB 2160 & 2170)  Linda Bozarth John Broere Alec Carpenter Alain Chuzel Dan Eberle Wade Johanns Gail Lueck Steve McMullen Senait Nuguse Swaroop Seshadri Dale Reid Evan Stumpges
Design and construction considerations for measurement and control of lithium battery protection.		
<b>Overall Mechanical Design</b> ( <i>Brian Call</i> )	EB 1150	
A discussion of brakes, fasteners, and more. Learn from the mechanical inspectors what to watch out as you design for and what they will be looking for when they inspect your solar car.		
<b>Scheduling and Budgeting Deep Dive</b> ( <i>Paul Hirtz</i> )	EB 1033	
This session will unpack two key areas of managing a successful project – keeping it on schedule and staying within budget. For schedule, we'll discuss actual working days, lead times needed for specific materials, and slack time for unexpected issues that arise. On the budget side, we'll look at the iterative process of putting the budget together, cash flows, impacts on fundraising, and resource needs beyond just money.		
<b>Driver Information System Architecture</b> ( <i>Dave Holdeman</i> )	EB 2011	
A well-executed Driver Information System can be a real help to a Solar Car Team. A poorly executed one can be worse than no system at all. This presentation will discuss requirements and realistic expectations for driver information. It will address hardware and software selection, information flow, logging requirements, communications protocols, and real-time considerations. The presenter has over 30 years of experience in industry doing control work with an emphasis on industrial data communications. He serves as an advisor for the SIU-Edwardsville Solar Car team.		

### 3:45-5:15pm Breakout Sessions #4

<b>Array</b> ( <i>Alain Chuzel &amp; Linda Bozarth</i> )	EB 0145	<b>One-on-Ones Opportunities</b> (EB 2160 & 2170)  Dan Bohachick Dan Eberle Paul Hirtz Wade Johanns Gail Lueck Steve McMullen Senait Nuguse Dale Reid
Topics to include the fundamentals of array design, make or buy decisions, installation and testing.		
<b>Outreach &amp; Race Logistics</b> ( <i>John Broere</i> )	EB 1150	
Learn about race planning (both domestic and international), including training your team, arranging logistics for travel, and doing outreach activities. Come join a discussion about what it takes to get ready for traveling with your solar car for 2+ weeks.		
<b>Solar Car Suspension Design</b> ( <i>Evan Stumpges</i> )	EB 1033	
Discussion of key suspension and steering system design considerations for achieving an efficient and stable vehicle.		
<b>Test Driven Development</b> ( <i>Alec Carpenter</i> )	EB 2011	
This session will cover how to test your code as you write it, and build confidence in its ability to continually deliver the intended value, even after the next generation of your team takes it over.		

### 5:30-9:00pm ISF Update, IEF Update, Dinner, and After Party!

*Head to the MUC for a general session followed by dinner and stay for the after party for additional networking!*

<b>5:30pm ISF Update</b> ( <i>Dan Eberle</i> )	MUC Ballroom
<b>6:00pm IEF Update &amp; Dinner</b> ( <i>provided by SIUE</i> )	MUC Ballroom
<b>7:30pm After Party &amp; Solar Car Shop Tour</b>	Cougar Lanes (basement of MUC)

After dinner stick around for a casual evening! The basement of the MUC offers Cougar Lanes featuring 16 bowling lanes. Billiards, air hockey, table tennis, and a video arcade are also available. (Please note, any cost for activities is on your own.) SIUE solar car team members will also be giving tours of their shop area located in the Engineering Building, and of course, there is plenty of space to relax and continue conversations.

## SUNDAY, FEBRUARY 3 DETAILS

### 8:00-9:30am Breakout Sessions #5

#### Entrepreneurship (*Alain Chuzel & Linda Bozarth*)

EB 0145

Our take on small business ownership – a journey that started with being on a solar car team.

#### Strategy & Total Vehicle Optimization (*Dan Bohachick*)

EB 1150

An overview of factors and methods for establishing a decision framework in which your team can maximize benefits at each phase in your vehicle's design, construction, test, and race plans.

#### Looking Ahead: 2020 (*Gail Lueck*)

EB 1033

Get an early look at some things we are exploring for ASC 2020. Learn about the route approach that will introduce new challenges into the event! This is a peek into what is being planned, an explanation of why these changes are being explored, and an opportunity to be part of the discussion regarding the route, format, and more.

#### Composites Manufacturing (*Wade Johanns*)

EB 2011

A review of composite manufacturing processes including wet layup, infusion, and autoclave. Fabricating molds, vacuum bagging, and best practices for assembly will also be covered.

#### One-on-Ones Opportunities (EB 2160 & 2170)

John Broere  
Brian Call  
Dale Reid  
Dan Eberle  
Steve McMullen  
Senait Nuguse

### 9:45-11:15am Breakout Sessions #6

#### MOV Charging & Metering (*Dale Reid & Evan Stumpges*)

EB 0145

This session will discuss the plans for implementing MOV grid charging, power metering, and the energy efficiency scoring equation. If your team is looking to enter a multi-occupant vehicle in an upcoming event, please send at least one representative to be part of this discussion.

#### Mechanical Failures (*Brian Call*)

EB 1150

Learn from the past mistakes of other teams. This session will be heavily driven by photos and examples of past failures, with a discussion of how to avoid making these same mistakes with your solar car project.

#### Team Success Stories (*Senait Nuguse & team representatives*)

EB 1033

This session will include presentations from the University of Michigan, Appalachian State, University of California Berkeley, and University of Minnesota. Michigan will be discussing how to maintain a quick design/ build cycle, AppState will be covering business team operations, CalSol will be discussing recruitment and managing a large race team, and Minnesota will be covering how to get sponsors actively interested in your project. Following the presentations will be a Q&A. Learn from their insights and see how you can apply these for your team's own success!

#### Electrical Topics Open Q&A (*Electrical presenters*)

EB 2011

Got questions that weren't covered in the other electrical sessions? Come to this session for an open time of questions and answers with the electrical inspectors.

#### One-on-Ones Opportunities (EB 2160 & 2170)

Linda Bozarth  
John Broere  
Alec Carpenter  
Alain Chuzel  
Wade Johanns

### 11:30am-12:30pm Closing Session

*Head to the MUC Ballroom to wrap-up the conference!*

