

## Tuesday, April 14, 2020

AM Session	<u>Lecture: Introduction to Vehicle Crashworthiness</u> Instructor: Sudip Bhattacharjee, PhD Supervisor Ford	PM Session	<u>Lecture: Introduction to Vehicle Crashworthiness (cont.)</u> Instructor: Sudip Bhattacharjee, PhD Supervisor Ford
Time	Room 105	Time	Room 105
8:15 am	<b>Welcome &amp; Introduction</b> <b>Warren Parsons</b> Chief Architect General Motors	1:30 pm	<b>Fundamentals of Impact Dynamics</b> - Impulse, Momentum and Energy - Engineering Metric in Vehicle Design for Vehicle Crashworthiness - Nonlinear Material Behavior and Crush Resistance of Structural Members - Crash Response of Thin-Wall Structural Members
8:30 am	<b>Vehicle Accident Statistics and Role of Vehicle Crashworthiness</b> - Trends in US Fatality Data - Human Factors in Road Traffic Accidents - Inadvertent Vehicle Crash Modes - Vehicle Design for Crashworthiness – Structure, Sensors and Restraints - Advanced Technologies for Active Intervention and Accident Avoidance - Current Vehicle Design for Crashworthiness – “Passive” Safety		
10:00 am	<b>Break</b>	3:00 pm	<b>Break</b>
10:30 am	<b>Measurement of Vehicle Crashworthiness</b> - Crash Safety Regulations and Competitive Performance Rating of new Vehicles - Standardized Crash Test Modes – Front, Side and Rear Impact - Structural Response Measurements - Occupant Response Prediction with ATDs and Injury Criteria - Vehicle Assessment for Pedestrian Protection - R&D in Injury Biomechanics - Crash Test Data in Public Domain: NHTSA Crash Test Database	3:30 pm	<b>Design of Vehicle Structures for Crashworthiness</b> - System Architecture and Critical Crash Structures - Bumper System Design for Protection of Critical Vehicle Systems in Low Speed Impact - Design for High Speed Front Impact – Crash Space & Pulse Severity - Structural Design for Oblique Front Impact - Structural Load Path for Side Impact Protection - Structural Design for Protection in Rear Impact - Design of Vehicle Top Hats (For Roof Strength) For Occupant Protection During Vehicle Rollover - Advances in Vehicle Propulsion System & Design for Protection of Energy Storage System - Impact Worthiness of Body Exterior for Pedestrian Safety
12:30 pm	<b>Lecture Adjourned &amp; Lunch</b>	5:30 pm	<b>Adjournment</b>

## Wednesday, April 15, 2020

AM Session	<u>Lecture: Novelis' Next Generation High Strength Automotive 6xxx Alloy: Advanz™ - 6HS-s650</u> Instructors: Blake Zuidema, Laurent Chappuis, Michael Bull, John Hunter, Julio Malpica <i>Novelis</i> Jerome Fourmann <i>RTA</i>	PM Session	<u>Lecture: Novelis' Next Generation High Strength Automotive 6xxx Alloy: Advanz™ - 6HS-s650 (cont.)</u> Instructors: Blake Zuidema, Laurent Chappuis, Michael Bull, John Hunter, Julio Malpica <i>Novelis</i> Jerome Fourmann <i>RTA</i>
Time	Room 105	Time	Room 105
8:00 am	<b>Blake Zuidema</b> <i>Novelis</i>  <b>Introduction &amp; New Trends for AI Applications</b> <ul style="list-style-type: none"> <li>- General Introduction</li> <li>- Fuel economy &amp; lightweighting</li> <li>- Consideration for BEVs</li> </ul>	1:30 pm	<b>John Hunter</b> <i>Novelis</i>  <b>Surface Finishing &amp; Corrosion Performance – AI Sheet Products</b> <ul style="list-style-type: none"> <li>- Surface Finishing</li> <li>- Cleaning and Pre-treatment</li> <li>- Corrosion of AI Alloys</li> </ul>
9:00 am	<b>Laurent Chappuis</b> <i>Novelis</i>  <b>Lightweighting Strategies and Environmental Impact</b> <ul style="list-style-type: none"> <li>- New Trends in AI Sheet Applications</li> <li>- Recycling Considerations</li> </ul>		
10:00 am	<b>Break</b>	3:00 pm	<b>Break</b>
10:30 am	<b>Jerome Fourmann</b> <i>RTA</i>  <b>Material and Product Performance Selection Criteria – AI Castings &amp; Extrusions</b> <ul style="list-style-type: none"> <li>- AI Castings for Automotive Structures</li> <li>- AI Extrusions for Automotive Structures</li> </ul>	3:30 pm	<b>Laurent Chappuis, Julio Malpica</b> <i>Novelis</i>  <b>Forming Aluminum Automotive Body Sheet</b> <ul style="list-style-type: none"> <li>- Material Data Cards for Simulation of Formability</li> <li>- Aluminum Stamping</li> <li>- Other Forming Technologies (Hot Forming, Roll Forming, Hydroforming, etc.)</li> </ul>
11:30 am	<b>Michael Bull</b> <i>Novelis</i>  <b>Material and Product Performance Selection Criteria – AI Sheet Products</b> <ul style="list-style-type: none"> <li>- AI Sheet Processing for Automotive Applications</li> <li>- Criteria for Outer, Inner, and Structural Applications</li> </ul>		
12:30 pm	<b>Lecture Adjourned &amp; Lunch</b>	5:30 pm	<b>Adjournment</b>

**Thursday, April 16, 2020**

AM Session		PM Session	
<p><u>Lecture: Aluminum Solutions for Automotive Body &amp; Structures</u>                      Instructors:                      Joao Moraes, Patrick Lester, Akshay Kulkarni, Donald Whitacre, Richard Newton  <i>Novelis</i>                      Jim Evangelista  <i>Shiloh</i></p>		<p><u>Lecture: Aluminum Solutions for Automotive Body &amp; Structures (cont.)</u>                      Instructors:                      Joao Moraes, Patrick Lester, Akshay Kulkarni, Donald Whitacre, Richard Newton  <i>Novelis</i>                      Jim Evangelista  <i>Shiloh</i></p>	
Time	Room 105	Time	Room 105
8:00 am	<p><b>Joao Moraes, Patrick Lester</b>  <i>Novelis</i></p> <p><b>Joining Technologies for Aluminum Sheet Products</b></p> <ul style="list-style-type: none"> <li>- Mechanical Joining – SPR, Cinch, Bolt</li> <li>- Resistance Spot Welding</li> <li>- Laser Joining</li> <li>- Adhesive Bonding</li> </ul>	1:00 pm	<p><b>Donald Whitacre</b>  <i>Novelis</i></p> <p><b>Advanced Design with Aluminum – Key Enablers</b></p> <ul style="list-style-type: none"> <li>- Key Enablers in Designing High-Volume, Low-Cost Sheet Aluminum Products</li> <li>- Application Examples (AI Doors, Battery Enclosures, Longitudinal Rails, Side Impact Beams)</li> </ul>
10:00 am	<p><b>Break</b></p>	2:00 pm	<p><b>Jim Evangelista</b>  <i>Shiloh</i></p> <p><b>Design for Noise, Vibration, and Harshness</b></p> <ul style="list-style-type: none"> <li>- Noise &amp; Sound Generation</li> <li>- Noise &amp; Sound Transmission</li> </ul>
10:30 am	<p><b>Akshay Kulkarni</b>  <i>Novelis</i></p> <p><b>Design for Crash Performance</b></p> <ul style="list-style-type: none"> <li>- Vehicle Crashworthiness</li> <li>- Key Structural Parts in Various Crash Modes</li> <li>- Material Fracture and Joint Failure in Crash</li> <li>- Novelis’ High Strength AI Crash Alloys</li> <li>- All AI Battery Enclosure Design for BEVs</li> <li>- Case Study – AI vs Steel</li> </ul>	3:00 pm	<p><b>Break</b></p>
		3:30 pm	<p><b>Richard Newton</b>  <i>Novelis</i></p> <p><b>Design Considerations for Lightweight Closures</b></p> <ul style="list-style-type: none"> <li>- Design Principles &amp; Guidelines</li> <li>- Value-In-Use, Including Impact of Recycling</li> </ul>
		4:30 pm	<p><b>Q&amp;A – Feedback</b></p>
12:00 pm	<p><b>Lecture Adjourned and Lunch</b></p>	5:00 pm	<p><b>Adjournment</b></p>

# Registration Form

# AUTOMOTIVE COURSES

## FEE SCHEDULE FOR REGISTRANTS

Fee for Attending for 3 Days is \$2,200 (**\$2,500 after March 19, 2020**) (Access to lectures for all days of the courses; also includes access to the Courses Materials, coffee breaks, lunch(es), reception, and successful candidates will be recognized at a special dinner ceremony)

- Fee for Attending for 3 Days is \$2,200 (**\$2,500 after March 19, 2020**)
- Team Fee for Attending for 3 Days is \$2,000
- Fee for Attending for 2 Days is \$2,000
- Fee for Attending for 1 Day is \$1,500
- Fee for Attending for Half a Day is \$1,000

Tell us which day(s) you would like to attend (If it is half a day please state whether it is am or pm):

PLEASE PRINT OR TYPE (ALL FIELDS REQUIRED)

I'd like to receive email communications about this and future GAMC events:

Full Name:

Position:

Organization:

Email:

Card Number:

Expiration Date:

CVC:

Amount:

Address:

ZIP:

Phone (Office):

Mobile:

The address you provide must be the **billing address** associated with the account

PAYMENT METHODS: (All checks must be drawn from U.S. banks in U.S. funds)

Make Check Payable to: Global Automotive Management Council in the amount of, US\$ \_\_\_\_\_

Signature: X \_\_\_\_\_ Date: \_\_\_\_\_

Mail or Fax Registration Form to: Global Automotive Management Council, 5340 Plymouth Road, Suite 205, Ann Arbor, MI 48105, USA. FAX: (734) 786-2242 EMAIL: [nasimu@gamcinc.com](mailto:nasimu@gamcinc.com) REFUND POLICY: No refunds. All returned checks receive a \$50 fee.

Online Registration Available at [www.gamcinc.com](http://www.gamcinc.com)

Comments: \_\_\_\_\_

How did you hear about us? \_\_\_\_\_