Channel Islands Section

Section Leaders
• Paul Donohoe, Chair
• Dennis Horwitz Vice-Chair, Treasurer & Webmaster
• Don Geoff Carter, Secretary

Student Section Collaborations
• UCSB Student Section
• Moorpark College

Organized: As a Group, 1969; as a Subsection, 1973; as a Section, 1983
Serves Ventura and part of Santa Barbara counties
The region stretches about 125 miles ~ along the 101 Freeway
255 Active ASME Members in Region
ASME Member Benefits

Professional Members
- Stay informed of technology innovations, e.g. via Group/SmartBriefs/ME Magazine
- Networking for collaboration or employment opportunities
- Access to standards (user or contributor)
- Access to industry/career data
- Group insurance and other discounts
- Volunteer/Mentoring Opportunities
- Cool tours, events and presentations

Additional Student Benefits
- Insight into career opportunities
- Student competitions
- Networking with students/professionals
- Resume builder
Past Activities – Company Tours

- Haas Automation – largest machine tool mfg in the USA. Otherwise our region does not have a large hard goods manufacturing segment
- Experior Test Labs
- Coastal Connections (fiber optic assemblies)
- BMW DesignWorks (best attended)
- Calleguas Municipal Water District
- Aurora Casting & Engineering
Recent/Upcoming Activities – Meeting Topics

• Holiday Meeting- Hands-On Introduction to Lego Robotics
• ASME CI Project of the Year
• ANSYS Simulation Software
• Tour of Rubel’s Castle – an original folk art icon created from recycled materials
• Engineers Without Borders
• Lightweight Backpacking Technology
• Light Electric Vehicles
• How to make yourself employable while in college
• Professional/Student Mentoring
National Engineers Week Scholarship and Awards Banquet - Santa Barbara and Ventura Counties

- Supported by all the major engineering societies with active sections in Santa Barbara and/or Ventura County
- Awards 10 Scholarships of $1000 each to selected engineering and eng-prep students from eight local 2-Yr CCs and 4-Yr Colleges
- Individual societies recognize and Engineer and Project of the Year finalist
- 2013 was first year for ASME-CI to elect POY finalist, next year EOY and POY
Light Electric Vehicles
E-Bike and Neighborhood Electrics
(NEVs)
Areas of Innovations

• Batteries/Controllers
• Diagnostics/Telematics
• Motors & Drives
• Platforms
Definitions

• E-Bike (20-25 MpH, 1 HP ~750 Watts)
  – Pedelec vs Power on Demand
  – Mid-Drive vs Hub
• Fast E-Bike
• NEV
• Electric Scooter
• Electric Motor-Cycle
• EV
• PHEV (ice-range extender)
• HEV
Mass and Volume Energy Densities

Credit: Wikipedia
Wh/kg for Various Battery Types

Credit: Battery University
Discharge Rate Graphs

26650 high power cells: 100% continuous discharge 1A, 6A, 10A, 30A at 25°C

Credit: MICRO POWER
Lithium Cobalt Cycle Performance at Various C Rates

Cycle performance at various charge/discharge rates

Discharge capacity (mAh)

Number of cycles

Credit: Battery University
Battery Discharge Test Setup
BMS with 11 Pin Connector for Style 2 Battery
Output Cable from Battery with 50 Amp Anderson Connector
Battery Management System (BMS) Wire Connections to Each Cell
Measuring Cell Voltages at Diagnostic Connector
Many Unique and Some Proprietary Battery Interfaces
Cycle Analyst Display Screen for Kit Bikes and Tinkerers

Anderson Power Connector
Battery and Data
Connectors/Interfaces

Rosenberger Power Data (RoPD)

Speedict – BlueTooth Interface
Copenhagen, Smart Wheel and Bosch Mid-Drives
Fast E-Bikes
Light E-Bikes

Gruber – 22lbs

Ti or Carbon – ~32lbs
A “Basic” Electric Cargo Bike
A bike hauling some bikes..
Pending LEVs

Acrimoto

Scutum
Job Preparation

- Classwork/Skills & Tool Knowledge
- Projects, Projects, Projects
  - School Related
  - Hobbies
  - Home/Transport Hacking
- On Campus Jobs
- Off Campus Jobs
- Internships
- Sports/Clubs
- Lab Activities