

The Canaveral Flyer

September 2006

A Newsletter of the Canaveral Section of ASME International



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Greetings Canaveral Section members,

Our executive committee has grown this year and various positions have changed hands. I would like to welcome the new executive members and thank them in advance for their time and efforts assisting with this year's program. First I would like to welcome Ken Brace, this year's Vice Chair and Industry Relations Representative. I would also like to welcome Chris Epler our new Newsletter editor, a position that has been open for quite some time. This is a tremendous help. Thank you Chris and Ken for taking on these roles. I look forward to hosting some industry relations events this year and working with Ken and Chris as well as the remainder of the Canaveral Section executive committee to coordinate an event filled program year.

Last year the section held tours, had technical speakers present various engineering topics, attended Florida Tech's design showcase, and held our annual Senior Design Presentation as well as the annual awards banquet to honor distinguished members. This program year we are planning multiple events of the same style along with our annual events and hope to see many of you there. We are also planning to host some professional development courses that we were unable to put together last program year.

This year, like we did last year, we will do our best to post upcoming event information within the flyer to assist everyone with planning and of course event reminders will be sent out a few days in advance. As the new Chair, I look forward to serving the section to the best of my ability and hope to see you at the various events that we host this program year. Thank you in advance for your participation.

Sincerely,

*J.D. VanGilder
Canaveral Section Chair*

Schedule of Upcoming Events

<u>Date</u>	<u>Event</u>	<u>Location</u>	<u>RSVP Date</u>	<u>Contact</u>
Sept 13 7 PM	Bill Young from EnergyForDisaster will be giving a presentation about using solar energy when conventional means are not available.	Florida Solar Energy Center	Sept 11	Ken Brace kbrace@bilstech.com
Oct	Event TBD	TBD	TBD	TBD
Nov 8 6 PM	Colonel Joe Smyth USAF (retired) and current VP of Tanker Operations at EADS NA will be giving us an overview of EADS' Tanker Program	Florida Solar Energy Center	TBD	TBD
Jan	Annual ASME Section Awards Dinner	TBD	TBD	TBD
Feb 18 - 24	Eweek, Nominations for Tal Web Awards	TBD	TBD	TBD

Calling all Sponsors!

Sponsorship usually conjures up thoughts of the local pizza shop supporting your son or daughter's soccer team. The Canaveral Section has recently added sponsorship as a way to support section activities such as providing distinguished lecturers, professional development events, and monthly meeting costs, as well as student section scholarships, design competition sponsorships, and activities. The sponsorship notice will be supplied with each newsletter containing a sponsor's business and contact information on a standard business card size listing. The listing will run for a duration of one year for a donation of \$200 (receipt for tax purposes provided). Provide the information below and attach a business card (or email soft copy) to the following:

Company, Contact, Phone, Date, and Email

ASME Canaveral Section P.O. Box 540171
Merritt Island, FL 32954

J.D. Van Gilder at vangilderj2@asme.org

Activity in the Local Space Business

- The announcement of the Lockheed team's win on the NASA Orion CEV contract represents another step towards launching a new generation of space vehicles from Kennedy Space Center. Although the majority of the development work will be performed at Johnson Space Center, Lockheed intends to do the final assembly and integration in the Operations & Checkout building at KSC.

- The Florida Space Authority, the Florida Aerospace Finance Corp. and the Florida Space Research Institute have been consolidated into one organization – Space Florida. Hopefully this new entity can prove even more effective in attracting new aerospace business to Florida and the Space Coast.

Links to Useful Websites

ASME Canaveral Section: <http://sections.asme.org/canaveral/>
 Southern Field Office: <http://www.asme.org/regions/sro/>
 Region XI Home Page: <http://regions.asme.org/regionxi/>
 ASME International Home Page: <http://www.asme.org/>
 Canaveral Council of Technical Societies (CTS): <http://www.canaveralcts.org/>

Section News

Executive Committee

With the change in the seasons there have also been some changes among the leadership roles in the Canaveral section. Tom Moriarty has agreed to let J.D. VanGilder take the helm as Chairman. Tom did an outstanding job last year and his efforts should be commended. J.D. had the unfortunate luck being involved in a motorcycle accident over the summer; however, he is slowly recovering and should be back up to speed real soon.

Treasure Coast S.E.A.

Meetings are typically held on the third Friday of the month and meeting announcements will be sent via e-mail and the Vero Beach Press Journal prior to each meeting. If you would prefer to be reminded by any other method (phone, mail, etc.), please contact: **Kelly Mather** at southmoon@bellsouth.net

Corrosion Never Sleeps

The title of this month's article may be a play on Neil Young's 1979 live album "Rust Never Sleeps", but living close to the ocean and the Indian River, we see it in action everyday. When designing structures, components, or entire systems near or in these bodies of water, protection from long-term corrosion is a strong consideration. There are a number of different forms of corrosion and material breakdowns that occur in these salt spray and salt-water environments: general oxidation, galvanic corrosion, crevice corrosion, and inter-granular corrosion, to name a few. These depend on a lot of different factors, including type and condition of materials involved, make-up of water or atmosphere, etc, and there are a few things that can be done to curtail the material breakdown and loss. This month we will focus on galvanic corrosion.


Most of us know how this works. It's the same chemical process in a battery: Two dissimilar metals (anode and a cathode) in electrical contact are enveloped in an electrolyte (sodium chloride or sea/brackish water). The anode is sacrificial: it loses ions, and over time, measurable amounts of material to the protected cathode. The rate that the anode loses material increases if the materials are more electro-chemically different, and is related to other factors such as material surface areas, proximity, etc. The voltage potential between the materials can be determined from various galvanic charts. The potentials on the charts can vary based on test conditions, although the relative order of materials is usually the same (see chart last page).

So what can we do about the loss of material due to galvanic corrosion? Here are a few items to consider.

- Make all items out of the same material (ok, what else?)
- Use insulators between the materials to reduce or prevent current flow. Nylon or other types of plastics are good, low cost solutions. Avoid fiber-based materials that absorb water.
- Make the critical parts out of the cathodic metal and keep it small (surface area) if possible. Avoid anodic materials for critical parts, especially if they are small and there is a large cathodic structure close by.
- Add a sacrificial anode to the assembly. For example, a common material couple in an assembly is corrosion resistant steel and aluminum. Adding a zinc plate of proper proportion / location can be a cost-effective solution that will protect both materials.
- Specify or use a protective coating system (paint) or anodic coating. Protective systems are good only if properly bonded to the based material and they can stay intact for a reasonable percentage of service life. Zinc coating (galvanizing) is a common anodic coating for steel. Hot-dipped zinc works best, avoid electro-plated zinc.
- Hire a consultant if you or your organization does not have the expertise and you are designing for a critical application.

Noble, cathodic end
 Platinum
 Gold
 Graphite
 Titanium
 Silver
 Hastelloy C
 18-8 austenitic stainless steels (passive condition)
 Iron-chromium alloys (passive condition)
 Inconel (passive)
 Nickel
 Monel
 Cupronickel alloys
 Bronzes
 Copper
 Brasses
 Inconel (active)
 Nickel (active)
 Tin
 Lead
 18-8 Austenitic stainless steels (active)
 13% Chromium stainless steel (active)
 Cast iron
 Mild steel and iron
 Cadmium
 Aluminum alloys
 Zinc
 Magnesium and magnesium alloys
 Active, anodic end

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